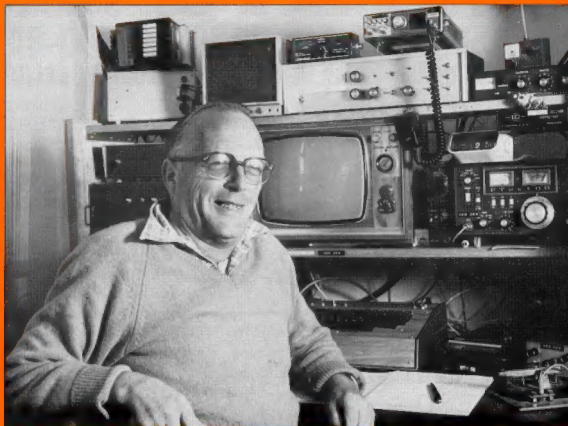


amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



VOL. 48, No. 3

MARCH 1980

FEATURED IN THIS ISSUE:

- ★ **WORLD ADMINISTRATIVE RADIO CONFERENCE — GENEVA 1979**
- ★ **RON WILKINSON AWARD AND AR AWARDS**
- ★ **A FIVE BAND VXO FOR THE FT75**
- ★ **ADDING RIT TO THE FRG-7**
- ★ **BINDING CONTEST LOGS**

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Cover Photo

This month we feature our Federal Contest Manager, Wally Watkins VK2DEW
(ex VK2ZNN, VK5ZWW and ZL2TCW). Wally mainly operates solid state
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Gen. Mtg. — 4th Tuesday, 19.30.

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QSP —

AN INVESTMENT IN OUR FUTURE

This issue of Amateur Radio contains a report on the World Administrative Radio Conference. The report is written in a broader context than many of the reports appearing in other Amateur journals.

WARC 79 was a conference marked by many issues. The Amateur Service was only one. Our success must be judged in relative terms. The result was highly favourable, coming after so many years of effort by so many people in so many countries.

Our Federal President, David Wardlaw, attended the IARU (International Amateur Radio Union) Presidents' International Working Group which was held concurrently with the Aeronautical (R) WARC in Geneva during February 1978. He also participated in the ITU, CCIR Special Preparatory Meeting and, together with Michael Owen, participated in the WARC as members of Australia's official delegation.

Michael Owen, Immediate Past President of the WIA, was a member of the IARU Presidents' International Working Group. He attended the SPM as a member of the Australian delegation and would have been a member of the IARU Observer Team to WARC had he not been invited to be a member of the Australian delegation together with David.

The WIA, with the help of radio clubs, commercial interests and numerous individual amateurs, financially supported our representatives on the Australian delegation. In a sense, this represented in absolute money terms the largest speculative investment that has ever been made by Australian amateurs. This was justified by the importance of this Conference for the future of amateur radio. To all those who contributed — thank you.

The fact that we were successful was the result of similar efforts in many countries.

It is appropriate that we record an account of the proceedings in Geneva during October and November last year. I recommend that you take the time to read the report carefully.

PETER WOLFENDEN VK3ZPA, Vice-Chairman.

WIANEWS

The "Australia Table of Frequency Allocations 10 kHz-275 GHz" published by the PMG's Department in 1974 is still the frequency table adhered to by Government until it becomes superseded in due course arising out of WARC 79.

This table shows Broadcasting (TV) in the segment 45-52 MHz with Fixed and Mobile as sending services. The band 52-54 MHz is shown as Amateur.

The band 520-585 MHz is allocated to "Broadcasting" with a note (59) that "the band 576-585 MHz is allocated to the Amateur service until required by the Broadcasting service".

In the existing Radio Regulations the band 50-54 MHz is allocated to the Amateur service in Regions 2 and 3 with 4 footnotes of variations by 9 countries, all in Region 3.

The outcome of WARC 79 shows that when the provisions of this Conference are implemented (from 1-1-1982) the band 50-54 MHz continues to be allocated to the Amateur service in Regions 2 and 3. However, there are now fresh footnotes, one of which (3543A) shows the additional allocation in Australia, China and North Korea that the band 50-54 MHz is also allocated to the Broadcasting service on a primary basis. Eleven other countries in Region 3 also have footnotes but 11 countries in Region 1 will allocate 50-54 MHz to the Amateur service on a primary basis—there was no previous amateur allocation on 6 metres in Region 1 except by footnote for 6 "countries" in Southern Africa.

A letter has been written to the Minister of P. and T. relating to the reported use of TV Ch. 0, including use for IMBC.

1980 Federal Convention Agenda Items will include an item to permit discussions to take place on the Amateur Advisory Service and allied questions arising therefrom.

Members will remember reading a QSP in January AR (p. 31) relating to radiation hazards. This is a subject currently under study by a Standards Association of Australia sub-committee headed by Professor Husey (VK2AHU). The institute has requested Jim Lloyd VK1CDR, already a member, to look after amateur interests.

At the January meeting of the Executive discussions took place on a wide variety of on-going and current subjects. In a few matters it is expected that answers will be forthcoming at the next Joint Committee meeting due to be held later in February.

The Executive wishes to acknowledge with grateful thanks the receipt of further WARC 79 donations from members.—

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WORLD ADMINISTRATIVE RADIO CONFERENCE — GENEVA, 1979

A PERSONAL NOTE

The Wireless Institute of Australia, many individual Amateurs, clubs and commercial organisations supported two Amateurs as members of the delegation of Australia to the World Administrative Radio Conference.

Naturally, the first question that is asked relates to the Frequency Table. This question has already been answered. However, simply looking at the Table tells little of the Conference itself. So much time, effort and money has been spent in preparing for this Conference by observing the Aeronautical (R) WARC, participating in the Special Preparatory Meeting of the CCIR, participating in the ITU Seminar in Sydney and participating in the Australian preparation as well as in the WARC itself that we believe a full report should be published. However, any report to be meaningful rather than interminable must incorporate many generalisations and many value judgments.

In reporting here and elsewhere on the events that have culminated in the new Radio Regulations, we have generally avoided reference to particular individuals. So many people from so many countries contributed in so many ways to the outcome of the WARC, in many cases quietly and in the background, that we feel that it is not appropriate to attempt to identify individuals who should be particularly recognised. This is certainly true of dele-

gates who were always bound by their administration's position but who could either influence that position or influence others.

We have always avoided, we hope, over-emphasising the role of Australia—it is sufficient for us that others have seen Australia as a strong supporter of the Amateur Service.

We do, however, wish particularly to note the fact that on Amateur matters the delegates of Australia and New Zealand worked in close mutual co-operation throughout the Conference.

We stress that the judgments are ours. Our interpretation of the WARC may not necessarily accord with the views of the Australian delegation or the Australian administration. Our reports are from the perspective of the Amateur Service but in the years of preparation for the WARC and in the course of the WARC we have become acutely conscious of the differing priorities expressed by different countries and the enormous pressure on the spectrum from so many radio services both existing and planned. The Amateurs of today and of the future cannot ignore these pressures or the fragility of the forum of nations that determines the balance to be given to those conflicting pressures.

This is the important lesson of the WARC.

DAVID
WARDLAW

MICHAEL
OWEN

On the 6th December, 1979, the Final Acts of the World Administrative Radio Conference were signed, at the conclusion of the Conference that had commenced on the 24th September and had thus worked for 74 days.

In addition to reviewing the Frequency Table, the Conference had reviewed and revised many of the fundamental provisions which are also part of the Radio Regulations. These Regulations form part of the International Telecommunications Convention and have the force of a treaty between nations. In addition, the Conference adopted many new Resolutions and Recommendations. The 1979 Conference was the first general conference since 1959 and has been said to be the most important conference ever organised by the ITU.

The ITU Secretariat published numerous statistics relating to the Conference. These statistics give an idea of the magnitude of the Conference, and some are worth quoting.

There were 2,000 delegates or observers from 142 Member Countries of the ITU and 30 International Organisations. The texts of the Final Acts which include the

new Radio Regulations and numerous Resolutions and Recommendations, covered 1,150 pages.

There were 894 plenary meetings, meetings of committees and meetings of working groups. This number does not include the smaller meetings.

There were a large number of proposals. For example, there were 12,832 proposals affecting the Frequency Table and certain terms and definitions and other provisions relating to the Frequency Table. 2,634 of those proposals related specifically to proposals for allocations in the band 4-27.5 MHz. In all Committee 5 and its working groups, which were responsible for this part of the Agenda, held 151 separate meetings.

The Conference was held in the International Conference Centre of Geneva (the CICG), which has a series of large conference halls that by a system of moving walls can be opened into a single much larger hall or subdivided into smaller halls. With the use of microphones and headphones the delegates are able to speak or listen, either directly to the person speaking, or to the simultaneous interpretation into either English, French,

Russian, Chinese, Spanish or Arabic.

The size of delegations varied considerably. The United States had a delegation of some 66, which was supported by a substantial back-up staff. Australia had a delegation that for a time effectively numbered 24. Other countries had delegations of 2 or 3. One consequence of the interest of countries with small delegations in covering as many areas as possible was the adoption of a conference structure that restricted the number of working groups and the number of meetings held simultaneously to enable the smaller delegations to participate as fully as possible.

The Committees and their terms of reference, established by the first Plenary (together with their Chairmen), were:—

COMMITTEE 1 Steering Committee

Chairman:

Mr. Roberto J. P. Severini (Argentina),
Chairman of the Conference.

Vice-Chairmen:

Messrs. A. L. Badalov (USSR), J. Jigpuep (Cameroon), H. Kleffer (Switzerland), Li Linchun (China), A. Pettì (Italy), G. O.

Robinson (United States), Vice-Chairmen of the Conference.

Terms of Reference:

To co-ordinate the work of the Committees, fix the timetables of meetings, etc.

COMMITTEE 2

Credentials Committee

Chairman:

Mr. C. J. Martinez (Venezuela).

Vice-Chairman:

Dr. Amer Johard (Iraq).

Terms of Reference:

To verify the credentials of delegations and to report on its conclusions to the plenary meeting within the time specified by the latter.

COMMITTEE 3

Budget Control Committee

Chairman:

Mr. Z. Kupczyk (Poland).

Vice-Chairman:

Mr. K. P. R. Menon (Malaysia).

Terms of Reference:

To determine the organisation and the facilities available to the delegates and to examine and approve the accounts for expenditure incurred throughout the duration of the Conference.

COMMITTEE 4

Technical Regulations Committee

Chairman:

Mr. N. Morishima (Japan).

Vice-Chairman:

Mr. M. Classe (Senegal).

Terms of Reference:

To consider proposals concerning the following articles:

Article N1, Terms and definitions: Section V, Space, orbits and types of objects in space: Section VI, Technical characteristics;

Article N2, Nomenclature of the frequency and wavelength bands used in radiocommunication;

Article N3, Designation of emissions;

Article N4, Technical characteristics;

Article N16, Interference;

Article N17, Tests;

and the related Appendices 3, 4, 5 and B.

To consider proposals concerning technical provisions included in the following Articles:

Article N25, Terrestrial radiocommunication services sharing frequency bands with space radiocommunication services above 1 GHz;

Article N26, Space radiocommunication services sharing frequency bands with terrestrial radiocommunication services above 1 GHz;

Article N27, Special rules relating to space radiocommunication services;

Article N33, Radiodetermination service and radiodetermination-satellite service; Section IVB, Radiobeacon stations;

and the related Appendices 28 and 29.

To consider as appropriate to the work

of the Technical Regulations Committee the resolutions and recommendations adopted by previous administrative radio conferences and to take such action as may be considered necessary including the adoption of any new resolutions and recommendations and also to consider Appendix Z.

COMMITTEE 5

Frequency Allocations Committee

Chairman:

Mr. M. Harbi (Algeria).

Vice-Chairman:

Mr. J. J. Hernandez (Mexico).

Terms of Reference:

To consider proposals concerning the following articles:

Article N1, Terms and definitions (Sections III-V): Section II, Radio systems, services and stations; Section III, Terrestrial radio systems, services and stations; Section V, Space radio systems, services and stations and radio astronomy;

Article N5, General rules for the assignment and use of frequencies;

Article N6, Special arrangements;

Article N7, Frequency allocations;

Article N8, Special rules for the assignment and use of frequencies;

Article N28, Section I, Broadcasting service;

Article N29, Fixed service;

Article N47, Special rules relating to the use of frequencies in the aeronautical mobile service; and the related Appendix 24.

To consider as appropriate to the work of the Frequency Allocations Committee the resolutions and recommendations adopted by previous administrative radio conferences and to take such action as may be considered necessary including the adoption of any new resolutions and recommendations.

COMMITTEE 6

Regulatory Procedures Committee

Chairman:

Mr. M. Joachim (Czechoslovakia).

Vice-Chairman:

Mr. E. J. Wilkinson (Australia).

Terms of Reference:

To consider proposals concerning the co-ordination, notification and registration of frequency assignments, and the activities of the IFRB and, in particular, proposals concerning the following articles:

Article N9, Co-ordination, notification and registration of frequencies — International Frequency Registration Board, general provisions;

Article N10, Internal Regulations of the International Frequency Registration Board;

Article N11, Co-ordination of frequency assignments to stations in a space radiocommunication service except stations in the broadcasting-satellite service and to appropriate terrestrial stations;

Article N12, Notification and recording in the Master International Frequency Register of frequency assignments to terrestrial radiocommunication stations; Article N13, Notification and recording in the Master International Frequency Register of frequency assignments to radio astronomy and space radiocommunication stations except stations in the broadcasting-satellite service; and the related Appendices 1, 1A and 1B.

To consider proposals concerning regulatory measures against harmful interference covered by the following articles:

Article N18, International monitoring;

Article N19, Reports of infringements;

Article N20, Procedure in the case of harmful interference;

and the related Appendices 6, 7, 8 and 9.

To consider as appropriate to the work of the Regulatory Procedures Committee the resolutions and recommendations adopted by previous administrative radio conferences and to take such action as may be considered necessary including the adoption of any new resolutions and recommendations.

COMMITTEE 7

General Administrative Committee

Chairman:

Mr. P. O. Okundi (Kenya).

Vice-Chairman:

Mr. H. L. Venhaus (Federal Republic of Germany).

Terms of Reference:

To deal with proposals on general administrative matters not covered by other Committees and, in particular, to consider proposals concerning the following articles:

Article N1, Terms and definitions: Section 1, General terms;

Article N21, Secrecy;

Article N22, Licences;

Article N23, Identification of stations;

Article N24, Service documents;

Article N30, Amateur service and amateur-satellite service;

Article N31, Standard frequency service and time signals service;

Article N32, Experimental stations;

Article N33, Radiodetermination service and radiodetermination-satellite service, Sections I, II, III and IVA;

Article N39, Special services relating to safety;

Article N73, Effective date of the Radio Regulations;

and the related Appendices C, 8, 10 and 23.

To consider proposals on the technical aspects for the use of radiocommunications for making, identifying, locating and communicating with the means of medical transport protected under the 1949 Geneva Conventions and any additional instruments of these Conventions.

To suggest to the plenary meeting, taking account also of the advice of the other Committees, a programme of future administrative radio conferences to deal with specific services with a view to presenting advice on such a programme to the ITU Administrative Council for subsequent submission to the Plenipotentiary Conference.

To consider Resolution No. Sat-4 of the World Broadcasting-Satellite Administrative Radio Conference (Geneva, 1977), and to take such action as may be considered necessary.

To consider as appropriate to the work of the General Administrative Committee the resolutions and recommendations adopted by previous administrative radio conferences and to take such action as may be considered necessary including the adoption of any new resolutions and recommendations.

CCITT studies carried out in accordance with Resolutions Nos. Mar-22 and Mar-23 and to take such action as may be considered necessary.

COMMITTEE 9

Editorial Committee

Chairman:

Mr. P. Bassole (France).

Vice-Chairmen:

Mr. V. Quintas (Spain).

Mr. D. E. Baptiste (United Kingdom).

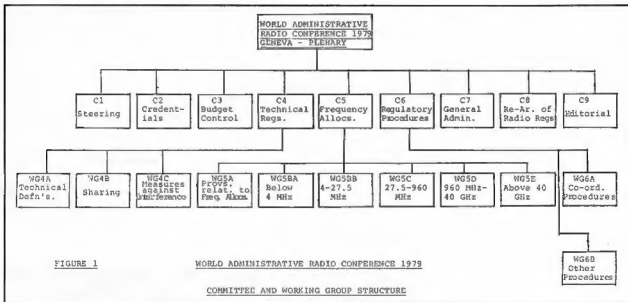
Terms of Reference:

To perfect the form of the texts of the Final Acts without altering the sense.

The work of the main committees was spread between various working groups and Figure 1 shows the broad structure of the Conference. In addition to the working groups a considerable number of sub-working groups, ad hoc working groups,

The Amateur and Amateur Satellite Services were only a small part of the Conference, even though matters affecting those Services were constantly arising in one committee or working group or another. The Conference was concerned with the allocations to all Services, specific regulations affecting a small number of Services (including the Amateur Service) and the fundamental provisions of the Radio Regulations, including those relating to the international co-ordination of radio communications as well as definitions and other general provisions.

Some foresaw this Conference as likely to be the forum for a massive political confrontation between the developed and developing countries. To an extent, the Conference was marked by such a conflict. The so-called non-aligned group of countries was a significant voice on a number of issues. Some of the contro-



COMMITTEE 8

Restructure of the Radio Regulations and the Additional Radio Regulations

Chairman:

Mr. O. Lundberg (Sweden).

Vice-Chairman:

Mr. G. I. Warren (Canada).

Terms of Reference:

To consider the specific proposals concerning the basic re-arrangement of the Radio Regulations and the Additional Radio Regulations, and the further refinement and deletion of superfluous or redundant provisions in Articles N34-N38, N40-46 and N48-N72, as well as any consequential amendments concerning those articles, related appendices, resolutions and recommendations including the adoption of any new resolutions and recommendations.

To consider proposals based on the

drafting groups and editorial groups were formed from time to time.

In addition to Mr. E. J. Wilkinson (leader of the Australian delegation), who was the Vice-Chairman of Committee 6, Australia provided a number of other Chairmen. Both the deputy leaders of the Australian delegation were Chairmen of working groups. Mr. Peter Barnes was Chairman of Working Group 5BB, which was responsible for the Frequency Table between 4-27.5 MHz and Mr. Eric Craig was Chairman of Working Group 4B (Technical). In addition, other members of the Australian delegation were from time to time Chairmen of various sub-working groups and ad hoc working groups. These appointments effectively reduced the numbers of the Australian delegation during the period the people concerned were occupied with their duties on behalf of the Conference.

versal issues were resolved during the WARC, but some were simply side-stepped and will become the subject of future specialised conferences.

The opening of the Conference was delayed for some three days whilst the choice of the Chairman of the Conference was agreed. Ultimately Mr. Roberto Severini of Argentina was chosen. This was the first of many compromises that resolved the conflicting interests of different Member Countries of the ITU. Many will have left WARC 1979 disappointed. The real pressure for a substantial increase in HF bands allocated to broadcasting was largely unsuccessful. There was no extension for HF broadcasting below 9 MHz though an additional 725 kHz of spectrum will become available in bands between 9 MHz and 22 MHz. Some additional spectrum was allocated to the Mari-

time Mobile Service but again far less than was sought.

Any expansion to Services in the HF bands was inevitably to come from bands now allocated to the Fixed Service. The developing countries argued that broad Fixed Service bands were essential for them to provide communications to areas where they could not, at their present stage of development, provide communications by alternative means, and thus strongly opposed any reduction at all of those bands.

Indeed, one country, Algeria, proposed a division of all HF Fixed Service bands so that, of these bands, 70 per cent would be specifically reserved for use by the developing countries. This proposal was not adopted, though new procedures to remove outdated assignments and to enable special assistance to be given to developing countries in seeking new fixed assignments were developed and adopted.

Another example of the differing philosophies of different countries arose in relation to the question of whether or not there should be planning for the Fixed Satellite Service. As in the case of assignments in the HF Fixed bands, the developing countries strenuously attacked the concept of "first come first served". The geostationary satellite orbit is recognised by the International Telecommunications Convention as a limited resource. Many developing countries argued for planning so that they should be guaranteed access to this resource: a priori planning may involve nations being able to reserve a position for their future use. It was said by those administrations that opposed this approach that this would be to the detriment of those countries which have a requirement for present use, in order to leave space for countries that may not have either the ability or interest to put up satellites. Some countries argued in favour of regulatory procedures designed to take advantage of developing technology and to provide means of facilitating co-ordination procedures to enable, they argued, maximum utilisation of the orbit satellite resource. In the end the Conference decided on a resolution calling for a further Conference in two parts, the first part to be held in 1984 to resolve these issues.

The Conference was marked by divisions and suspicion. The results were not always logical. The Frequency Table now has far more footnotes than it had before and far more countries in those footnotes. Footnotes provide for additional or alternative locations for virtually every part of the spectrum. The effective co-ordination of services in accordance with the International Regulations will become extraordinarily difficult if all the services allocated by footnote are, in fact, established in the countries entitled by footnote to do so. Many of the Regulations, formulated in sub-working groups or draft-

ing groups, incorporate amendments proposed at working group or committee level (with perhaps several hundred delegates participating) that contain ambiguities or inconsistencies that will bedevil their interpretation for many years to come.

Yet in the end agreement was reached within 11 weeks, subject to very few reservations. This was, perhaps, the real achievement of the Conference.

It is against this background that the decisions of the Conference affecting the Amateur Service must be viewed. Amidst all the very real needs of so many Services to use the radio frequency spectrum amidst the vastly different needs and aspirations of different countries, the Amateur Service fared well. In the most general terms it can be said that the Amateur Service had the benefit of a general sympathy and considerable support. The debate was not whether there should be an Amateur Service, but how much spectrum it should have and to what extent it should be restricted by regulations.

The area of disagreement was generally based on differing perceptions of priorities. No matter how important we may think our use of the spectrum is, others, with different national requirements, must be expected to take a different view.

Turning now to the actual decisions of the Conference that directly affect the Amateur Service, attention must be directed in the first instance to the Frequency Table. In this context it must be stressed that nothing happens as a result of the conclusions reached at the WARC. Each administration (including Australia) will be formulating its own National Table and therefore what is here said should

not be regarded as necessarily representing the ultimate position in this country.

The question of the timing of any changes is dealt with separately.

1800-2000 kHz

So far as Region 3 was concerned, the Amateur Service remains co-primary with Fixed Mobile and Radionavigation though Radiolocation has been made a secondary service. In Region 1 there is a new exclusive band between 1810-1850 kHz though by footnote the Amateur Service can only use 1830-1850 in some countries and by other footnotes it will be shared in other countries. In Region 2 an exclusive allocation was made between 1800-1850 kHz with a shared allocation from 1850-2000 kHz. Attempts to obtain an exclusive segment within the shared band for the Amateur Service in Region 3 failed because of the continued use of Lorán A on small vessels operating in part of the Region. The new Region 1 allocation is a significant step forward and, so far as Australia is concerned, no change detrimental to the Amateur Service is likely.

3500-3900 kHz

Again no changes took place in Regions 1 and 3. In Region 2, the band 3500-3750 kHz is allocated exclusively to the Amateur Service, and the band 3750-4000 kHz remains shared. The previous footnote referring to the Amateur Service restricting Amateurs to the band 3500-3700 on an exclusive basis was deleted on the philosophic basis that, as it is a shared band, the administration is free to split the band in any way it chooses and the footnote was therefore unnecessary. Again, no change should be anticipated in this band so far as Australia is concerned.



PHOTO 1: WARC 79, Australia at Committee 5B. L. to r.: David Wardlaw, V. A. Caluaria, P. Trost, W. Pike and P. J. Chapman.

7000-7100 kHz

Proposals for a world-wide band 6950-7100 (Australia), 6900-7100 (Canada), were defeated and the existing allocation, by the Table, of 7000-7100 remains in Regions 1 and 3 with an additional 200 kHz being allocated in Region 2. It is of course open for administrations to allocate an additional segment on a non-interference basis to the Amateur Service. Australia has in the past, and will no doubt continue to do this, in the band 7100-7150 kHz. Again, no change can be expected so far as Amateur operation is concerned in Australia. A consequential effect of the debate in this area is referred to subsequently.

10100-10150 kHz

This band is a new allocation to the Amateur Service on a secondary basis to the Fixed Service. It is a smaller band than proposed by the many administrations that proposed an exclusive band 100 kHz wide. Despite its small size and the secondary status, the band is of considerable interest, and in the end the major regret is that a further 50 kHz on a secondary basis could not be allocated. Of course, administrations will have the option of relocating any Fixed stations presently operating in this small segment, and perhaps such a course will be attractive in view of the likely intensive Amateur use of the band.

14000-14350 kHz

The band at 14000-14350 kHz was not changed, though the footnote allocating the band 14250-14350 to the Fixed Service in the USSR now includes Afghanistan, China, Ivory Coast and Iran though subject to a power limitation that fixed stations shall not use a radiated power exceeding 24 dBW (250 watts).

Broadcasting has been allocated a new band between 13600-13800 kHz. A proposal to move that band to the lower edge of the Amateur allocation was defeated, leaving, in effect, a "guard band" of lower powered Fixed stations between the Amateur band and the Broadcasting band.

14000-14350 kHz

A new world-wide exclusive Amateur allocation has been made, subject to a footnote allowing Fixed Service operation in the USSR, on a primary basis, subject to a power limit and for use only within the boundary of the USSR.

21000-21300 kHz

There was no change in this band.

24000-24300 kHz

A new Amateur and Amateur Satellite band allocated on a world-wide exclusive basis.

28-29.7 MHz

There was no change.

50-54 MHz

In Regions 2 and 3 the bands remain allocated to the Amateur Service on a primary basis with a number of footnotes making either additional or alternative

allocations to broadcasting, including an additional allocation to broadcasting in Australia. So far as Australia is concerned, the ultimate position will be determined in the formulation of the National Table. The current adjacent use by some television stations will continue to remain a problem to the Amateurs in this country. The ultimate position will depend on national policy decisions as to television broadcasting. In the short to medium term the possibility of time and/or geographic sharing cannot be overlooked.

Strong pressure, led by Norway, to make available, when it was possible, a small segment to the Amateur Service in Region 1 was not successful.

144-148 MHz

The band 144-148 MHz remains exclusive and world-wide subject to a footnote permitting fixed and mobile on a primary basis in Singapore of systems in operation on the 1st January, 1980. The use shall terminate on the 31st December, 1995. In Region 2 the band 146-148 remains allocated exclusively to the Amateur Service though in Region 3 the band is also allocated to fixed and mobile on a co-primary basis. In Region 1, the band 146-148 remains allocated to Fixed and Mobile. No change is likely in Australia.

420-450 MHz

In 1959 this band was allocated, in Regions 2 and 3, to Radiolocation primary and Amateur secondary. Now the band has been split and in all Regions the bands 420-430 MHz and 430-440 MHz are allocated to Fixed and Mobile primary and Radiolocation secondary. In Region 1 the band 430-440 is allocated to Amateur and Radiolocation co-primary, and in Regions 2 and 3 the band is allocated to Radiolocation primary with Amateur secondary.

There are numerous footnotes affecting this part of the spectrum. The band 435-438 remains allocated, by footnote, to the Amateur Satellite Service on the same basis as at present, that is, on a non-interference basis to other Services operating in accordance with the Table.

The band 430-440 MHz is allocated to the Fixed Service by footnote to over 40 countries and that band except 435-438 MHz is also allocated by the same footnote to Mobile other than aeronautical mobile also on a primary basis. It was only through a last minute agreement in Committee 5 that mobile was excluded from the Amateur satellite segment. Even that agreement was subject to a Final Protocol by Thailand reserving the right to operate Mobile except aeronautical mobile in the Amateur satellite segment though the final protocol stated that Thailand "shall take necessary steps to ensure that services operating according to the Frequency Allocation Table in other countries shall suffer no harmful interference . . .".

However, by a footnote Australia, the United States of America, Jamaica and the Philippines also allocated the bands 420-430 and 430-450 MHz to the Amateur Service on a secondary basis.

It would seem likely that in Australia we will see no change so far as the Amateur Service is concerned.

1215-1300 MHz

As was anticipated, the band 1215-1240 MHz has now been re-allocated to Radiolocation and Radionavigation Satellite (space-to-earth) in order to provide for Global Positioning radionavigation satellite systems. The band 1240-1300 MHz remains allocated world-wide to Amateur on a secondary basis, with the band 1260-1270 MHz allocated to the Amateur Satellite Service in the earth-to-space direction only, on the basis of non-interference to other Services. This is a new Amateur satellite allocation.

1300 MHz to 40 GHz

There has been no change in allocations to the existing bands in this part of the spectrum. However, additional Amateur satellite bands have been allocated on a non-interference basis at 2400-2450 MHz, 3400-3410 MHz (Regions 2 and 3 only) and 10.45-10.50 GHz. In addition to those allocations, the band 5650-5670 MHz is allocated to the Amateur Satellite Service in the earth-to-space direction only and 5830-5850 MHz has been allocated in the space-to-earth direction only.

Above 40 GHz

In the new bands above 40 GHz the following bands have been allocated exclusively to Amateur and Amateur satellite:—

47.0-47.2 GHz,
75.5-76.0 GHz,
142-144 GHz,
248-250 GHz.

In addition the following bands have been allocated to the Amateur and Amateur Satellite Service on a secondary basis, shared with other Services:—

76-81 GHz,
144-149 GHz,
241-248 GHz.

The band 119.98-120.02 GHz is allocated on a secondary basis to the Amateur Service only.

It will be observed that in the case of new bands above 40 GHz exclusive Amateur and Amateur Satellite allocations are generally made adjacent to wider shared allocations. There are 2 bands below 40 GHz where the same philosophy has been applied.

It is tempting to understate the importance of the new Amateur satellite bands throughout the spectrum and the new bands above 40 GHz. Prior to WARC 1979 the band 435-438 MHz was the highest band on which Amateur satellite operation was permitted other than 24-24.05 GHz. Access to new bands throughout the spectrum is essential if the Amateur Satellite Service is to continue to

provide experience of varying conditions and access to all parts of the spectrum is essential if the Amateur and Amateur Satellite Services are to continue to move with new technology.

Turning now to non-frequency table matters, Working Group 5A considered certain definitions, including the definition of the Amateur Service and the Amateur Satellite Service. A number of proposals were made to amend the definition of the Amateur Service, some of which had no real significance. For example, because the Spanish word "radioaficionados" is equivalent to "radio amateur", it was proposed to change the terms, in English, to "Radio Amateur Service" and "Radio Amateur Satellite Service", which would have then required numerous consequential changes in Article N30. This was rejected.

Other proposals were clearly designed to provide a basis for greater control by administrations of the Amateur Service by changes to the definitions. Some of these changes could have inhibited the granting of reciprocal permits, and in any event were not necessary; as, of course, an administration has total control of all licences under its jurisdiction. In the end only one change was made—a change proposed by Australia namely, rather than being "a service of self training intercommunication and technical investigation . . .", the Amateur Service becomes a "radio-communication service of . . .", etc. The desirability of this amendment lay in the definition of "harmful interference", which is defined in terms of an effect on either a safety service or "a radiocommunication service". Elsewhere the Regulations provide that the only other service not categorized as a "radiocommunication service", the Radio Astronomy Service, shall, for the purpose of resolving cases of harmful interference, be treated as a radiocommunication service. In short the amendment small as it is, makes more clear that the Amateur Service can complain of harmful interference from stations not operating in accordance with the table of frequency allocations or the provisions of the Regulations.

Article N30 is the Article specifically governing the Amateur and Amateur Satellite Service. It was considered in Committee 7, in the early stages of the Conference. In fact very little change was made. The most significant was that the morse code requirement, which may now be waived by administrations in the case of stations making use exclusively of frequencies above 144 MHz, was lowered to 30 MHz. This proved to be the most contentious issue arising from the consideration of this article. The United States had proposed that administrations be given a discretion as to requiring a morse code qualification at all, arguing that this would enable administrations to have regard to their own particular needs and also that this would facilitate handicapped persons

becoming Amateurs. This proposal was supported by Japan but opposed by many other administrations. The Federal Republic of Germany, for example, argued that it placed considerable value on its Amateur Service, it believed that its Amateurs should be highly qualified and were concerned that radio Amateurs could, for example, understand a morse code distress call. In the end 30 MHz was substituted for 144 MHz as a "compromise".

Now the Australian limited licensee's operation on the 6 metre band will, with the coming into force of the new Radio Regulations, be in accordance with those Regulations.

The provision of the Regulations requiring administrations to take such measures as they judge necessary to verify the "technical" qualifications of a person operating an amateur station was amended to include both "operational" and "technical" qualifications—a realistic amendment having regard to the fact that the definition of the Amateur Service incorporates not only the object of "technical investigation and self training" but also the object of "intercommunication".

Other minor changes were made to express the qualification requirement in terms of a condition precedent to obtaining a licence, rather than as a continuing obligation, an amendment of no practical significance though a little hard to follow in terms of logic.

A further provision was added to make it quite clear that the general provisions also applied, as appropriate, to stations operating in the Amateur Satellite Service.

The right of administrations to modify, by special arrangement, the prohibition against the transmission of international communications on behalf of third parties was maintained.

The debate on Article N30 highlighted the concern of a number of countries to restrict the freedom of, and exercise greater control over the Amateur Service. These administrations, of course, can do that now; what they were really seeking to do was to impose on other administrations an obligation to do the same. The end result preserved completely the existing concept of the Amateur Service.

In addition to these regulatory changes there are a number of resolutions that affect, directly or indirectly, the Amateur Service. Undoubtedly the most important of these is the resolution identified in the Final Acts as Resolution BN—"Relating to the international use of radiocommunications, in the event of natural disasters, in frequency bands allocated to the Amateur Service". This resolution arose from the proposal by a number of administrations that specified sub-bands within the HF Amateur bands be set aside for emergency communications.

Whilst on a philosophic basis the Amateur Service cannot reject the proper

use of its bands for emergency communications, there are inherent difficulties in the specification of sub-bands. A sub-band may not, in a particular situation, be the most appropriate frequency—the existence of other nets may need to be taken into account. The inherent disadvantage of a specified small sub-band is that it is likely to be precisely the part of the band where it is difficult to attract attention, simply because the Amateur stations would ordinarily not operate on the sub-band.

Other factors, too, also had to be taken into account. In providing communications in the case of a natural disaster stations operating at the scene may not necessarily be licensed Amateur stations. The national regulations of many administrations prohibit stations in the Amateur Service communicating with stations in other Services. Further, emergency communications necessarily involves the transmission of third party traffic. Article N30 requires special arrangements to be made between administrations before communications on behalf of third parties can be transmitted internationally.

All these factors were taken into account in the formulation of this resolution. The resolution may be paraphrased as follows.

The WARC considered that, in the event of natural disaster, normal communications systems may be overloaded, damaged or completely disrupted and that rapid establishment of communication is essential to facilitate world-wide relief, and that the Amateur bands are not bound by international plans or notification procedures and are suitable for such short term use, and that where international disaster communications would be facilitated by the temporary use of certain frequency bands allocated to the Amateur Service the stations of the Amateur Service, because of their widespread distribution, "and their demonstrated capacity in such cases" can assist.

The existence of national and regional Amateur emergency networks using frequencies throughout Amateur bands was also to be taken into account. It was recognised that the responsibility for communications in the event of a natural disaster rests with the administrations involved.

The WARC therefore resolved, firstly, that the bands allocated to the Amateur Service specified in a particular Footnote may be used by administrations to meet the needs of international disaster communications. Secondly, that the use of these bands shall only be for communications in relation to relief operation in connection with natural disasters. Thirdly, that such use shall be limited for the duration of the emergency and to the area defined by the responsible authority of the affected country. Fourthly, that the communications should take place within that area and between that area and the



PHOTO 2: WARC 79, general view of half of the meeting room at a session of Committee 5. Australian delegation (from l. to r., behind "Australia"): P. Barnes, R. Davies, P. Trost, J. Foggon, F. Shephard, David Wardlaw.

permanent headquarters of the organisation providing relief. Fifthly, that such communications require the consent of the administration of the country concerned. Sixthly, that relief communications provided from outside the country in which the disaster has occurred shall not replace existing national or international Amateur emergency networks, and seventhly, that close co-operation is desirable between Amateur stations and the stations of other radio services which may find it necessary to use Amateur frequencies in these circumstances and finally, that such international relief communications shall avoid, as far as practicable, interference to the Amateur Service networks.

The Conference invited administrations to provide for the needs of international disaster communication and to provide for the needs of emergency communications within their own national regulations.

This resolution is of considerable significance. It recognises the value of the Amateur Service in providing emergency communications. The resolution is not directed to replacing Amateur stations in Amateur bands by stations of other services for the purpose of providing emergency communications in the case of a natural disaster. It does contemplate non-Amateur stations working in co-operation with Amateur Stations. The stress on natural disasters is important—the Amateur Service has no role in the case of a civil emergency. The legitimate interest of the Amateur Service in the proper use of its own bands has been taken into account.

It will be now up to administrations to re-examine their own national regulations to ensure that in the case of a natural disaster their Amateurs are not restricted in their ability to provide essential emergency communications.

A further resolution affecting the Amateur Service relating to the use of the band 7000-7100 kHz did not receive the strong support of the previous resolution—in fact this resolution was finally adopted at a Plenary meeting by 38 votes in favour to 37 votes against. This resolution provided that the Broadcasting Service shall be prohibited from the band 7000-7100 kHz and that the broadcasting stations operating on frequencies in this band shall cease such operation, the resolution noting that band is allocated on a world-wide basis exclusively to the Amateur Service. In fact this resolution is not new—it replaces Resolution 10 of the Administrative Radio Conference of 1959 and has been amended to delete the previous obligation of broadcasting stations in Region 1 and 3 not to cause harmful interference to Amateur stations in Region 2 in the band 7100-7300 kHz.

A further resolution related to the bringing into use of earth stations in the Amateur Satellite Service. This resolution arose because the procedures of Articles N11 and N13 relating to the advance publication, notification, co-ordination and registration of satellite systems apply to the Amateur Service. The procedures are inappropriate in respect of earth stations in the Amateur Satellite Service simply because of their diversity in characteristics and the inability of an administration

to identify every station that may, at some time during the life of an Amateur satellite, wish to operate through that satellite. The resolution was based on a resolution originally proposed by the USA.

The Conference was of the view that, in respect of the space station, full particulars should be notified. It accepted that this should not be required in the case of Amateur earth stations.

Whilst the requirements of Articles N11 and N13 may not have, in fact, caused difficulties in the past, this resolution makes it clear that the International Frequency Registration Board should not reject the information supplied by an administration responsible for the launching of an Amateur satellite as incomplete on the basis that it contains insufficient information relating to earth stations in the Amateur satellite system. The resolution provides that the administration intending to establish such a system and wishing to publish information with respect to earth stations in that system may communicate all or part of the information listed in the relevant appendix. The IFRB shall publish such information in a special section of its weekly circular with a request for comments to be communicated within a period of four months after the date of publication. The information notified shall be recorded in a special list. The resolution does, however, require that if an administration wishes to publish that information, it shall include at least the characteristics of a typical Amateur earth station having the facility to control the space station.

So far as the new Amateur bands are concerned at 18 and 24 MHz a transfer procedure will apply, though there is no specific reference to the Amateur Service. The effect of these proposals is to provide for a preparatory or administrative stage that will terminate on the 1st July, 1984, and a transfer phase which requires the changeover to be effected by administrations by not later than the 1st July, 1989, in the frequency bands above 10 MHz. At this stage it is impossible to predict when, within that time, the final transfer to the Amateur Service will take place, though it should be pointed out



PHOTO 3 (l. to r.): Mr. Jim Wilkinson (leader of the Australian delegation), Bob Eldridge VE7BS (member Canadian delegation), David Wardlaw and Michael Owen.

that operation at an early date is possible if an administration is prepared to permit such operation on a non-interference basis.

A different situation exists in the case of the new band at 10.1-10.15 MHz. There the Amateur Service has been allocated the band on a secondary basis and accordingly the transfer procedure is not applicable. As the Final Acts of the World Administrative Radio Conference come into force on the 1st January, 1982, administrations can be expected to allocate that band to the Amateur Service from at least that date.

The late John Moyle attended the 1959 World Administrative Radio Conference as an observer to the Australian delegation. His report was published in *Amateur Radio* in March of 1960. That report makes fascinating reading for anyone who attended the 1979 Conference. He wrote "I only wish every Amateur could have been present at every part of the time. He would have learned about the enormous pressures on frequency space which have literally made portions of the spectrum unworkable, he would have seen how Amateur problems, important though they are to us, are only a small part of the incredibly complicated pattern of modern communication."

Those words were written when the ITU had 96 member countries. Today it has 154. Those words were written before the advent of the communications satellite. How much more apposite are they today!

John Moyle also made a number of comments and criticisms. He pointed out that it is far too late to initiate action at the Conference itself. He suggested that, in 1959, the Amateur Service fell down because its preliminary work over the years had not been good enough. In 1979 the gains that were made by the Amateur Service arose principally from the preparatory work of the IARU and its member societies throughout the world.

Closer to home we were helped by the enlightened attitude of our administration, and particularly the fair and open-minded approach of Mr. Jim Wilkinson, the First Assistant Secretary, Radio Frequency Management Division, and leader of the Australian delegation to WARC. He encouraged participation in the Australian preparation.

John Moyle, in 1959, commented that the IARU was an ineffective body, pointing to the fact that then there was little international co-operation except in Region 1. There was no IARU representation of Region 3. In 1979 this too had changed. In 1959 John Moyle suggested that the

IARU was preoccupied with their own local problems. On this occasion, perhaps with the exception of the issue of the 40 metre band which affected Amateurs in Region 2 differently from Amateurs in Regions 1 and 3, the IARU effectively promoted a global approach.

There is no question that the observation of John Moyle, that the most important thing was to have Amateur delegates, was more than justified by this Conference.

Finally, John Moyle felt it necessary to criticise the lack of awareness on the part of the Wireless Institute of Australia in 1959 of the fundamental issues of that Conference. The Federal Body of the Wireless Institute of Australia has been preoccupied with WARC 79. A substantial part of Federal conventions in recent years has been devoted to the discussion of the issues that were finally resolved in Geneva.

In short, both within Australia and internationally, the lessons of 1959 have been learnt, and applied successfully.

It is true that the Amateur Service had disappointments but overall the Amateur Service and the Amateurs of Australia have come from the 1979 World Administrative Radio Conference with much to be thankful for —MICHAEL OWEN. ■

THE RON WILKINSON ACHIEVEMENT AWARD FOR 1979

Details about this annual Award appear in AR March 1978, page 17. The Award is funded from interest received from a most generous donation received from Mrs. Mary Wilkinson, widow of the late Ron Wilkinson VK3AKC. Previous recipients were:—

1977

Wally Green VK6WG.
Reg Galle VK5QR.

1978

Winston Nichols VK7EM
Alf Chandler VK3LC

After the most careful and searching consideration the Executive came to the conclusion that few amateurs could better qualify for the 1979 Award than David Wardlaw VK3ADW and Michael Owen VK3KI. 1979 was the culmination of intensive and extensive work leading to and at WARC 79. What it was recognised that WARC was not so much the end as the beginning of continuing work for amateur radio, nevertheless the enormously valuable effort put into preparations for this Conference by these two prominent amateurs on behalf of the Amateur Service as a whole, together with the genuine sacrifice both of them endured at the Conference, must merit recognition by all amateurs.

For these reasons the benefits to the Amateur Service cannot be recorded strongly enough, and all members will most surely join in congratulating them upon receiving another of the WIA's highest Awards. ■

THANK YOU

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AR AWARDS

The Publications Committee has pleasure in advising the names of the recipients of awards for 1978

HIGGINBOTHAM AWARD

Mr. Syd Clark VK3ASC for loyal and meritorious service to Amateur Radio for over 20 years. Worth \$50.

TECHNICAL AWARD

Mr. Lou De Stefano VK3AQZ, for his article entitled "40 Channel Digital Synthesiser with 25/50 kHz Steps for 2m FM" in AR August 1978. Worth \$25.

ASJA

(Al Shawsmith Journalistic Award)

Mr. Terry Clark VK2ALG for his article entitled "The Living Legend" in AR December 1978, being adjudged the best piece of amateur radio journalism for the year. Engraved plaque plus \$15. ■

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BINDING CONTEST LOGS

John Anderson VK2ZXU

In the February 1979 issue of AR I read a complaint by the Contest Manager that one of the logs submitted to him was held together with solder. This surprised me as the use of solder in bookbinding has been extensive for some time.

As Broken Hill is a mining town we are naturally interested in increasing the use of lead, and have as a result developed many methods of binding using solder which should be more widely known. Being soft and easily worked with tools normally available to the active amateur, there is no reason why most of these methods could not be universally adopted.

I will not go into all the possibilities as some are quite complicated and have only limited specialist application. Those presented here however should be useful for those wishing to present thin contest logs or to file their experimental notes for future reference.

1. SINGLE HOLE PUBLIC SERVICE METHOD

In this method a single hole is punched in the top left-hand corner of each page. A short length of solder, e.g. 18 SWG rosin cored, is then looped once or twice through the hole and fastened. A simple knot will do but a better job is obtained if the ends are matched up and fused with a touch of a soldering iron (Fig. 1).

A better job is obtained using a copper rivet. While rivetting is quite satisfactory with paper, a certain amount of skill is necessary so one can use a technique originally used in the days of sealing wax.

A rivet of appropriate length is passed through the hole and an asbestos washer placed over the end to protect the paper.

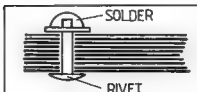


FIGURE 2

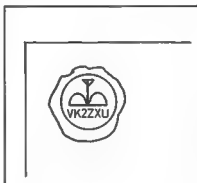


FIGURE 3

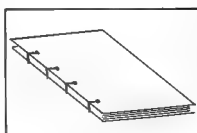


FIGURE 4

2. MULTI-HOLE METHOD
Here the standard 2 hole perforations are used or as I saw more frequently during my Sabbatical year in France 4 holes. Pages can be bound together using the same method as for the single hole case, i.e. a loop of solder through each hole

(Fig. 4), or each pair can be sewn together by a long solder loop with the ends neatly tied or fused together (Fig. 5). When this method is used a cover can be incorporated. Suitable covers made of cardboard and already punched are available at all stationery suppliers.

3. FULL BINDING METHOD

This is the preferred method for large numbers of pages such as would be the case with RD logs or VHF DXCC submissions. It is the required method for our students presenting their end of session reports and design theses. While more complex than the previous two methods the degree of difficulty is not beyond the average amateur constructor.

First one obtains a reel of thin spring copper or brass about 5 mm wide. This is cut into lengths equal to the long side of each page. A strip is then glued to the left-hand (spine) side of each page with the paper overlapping the strip by some 2-3 mm. PVC glue or a proprietary product such as Aquadhere is most satisfactory, although simple office paste or mucilage can be quite successful.

Next, one prepares a cover in a similar manner, using a piece of blank printed circuit board the same or a little larger than the page size. The copper or brass strip is in this case soldered on to the copper side of the board using the same overlap as for the pages. The pages and covers are then assembled neatly, with

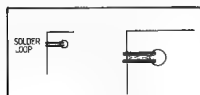


FIGURE 1

A blob of solder is then melted over the end of the rivet fixing the whole assembly firmly together (Fig. 2). If some individuality is desired one can press a seal carrying the station logo and call sign into the solder before it hardens (Fig. 3).

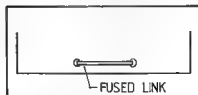


FIGURE 5

the cover overlapping top, bottom and right-hand side if this has been allowed for. The whole assembly is then clamped and arranged so that the spine is on top. Solder is then run lightly down the spine to firmly join the whole assembly together. A quick rub down with a file will smooth

down the spine and remove any irregularities.

It should be noted at this point that inserts such as sample circuit boards can be inserted providing a spacer is provided on the outer edge of the spring strip (see Fig 6). Such inserts can readily be removed for copying or duplication of equipment and soldered back in after use.

Finally the whole job is finished off by wrapping the spine with a strip of electrical tape, running the excess width over the cover boards. If a quarter binding effect

is required, a wide strip of coloured packaging tape can be used which will extend 2-3 cm over the cover boards. Small pieces of tape across each corner completes the effect.

For a really professional appearance, Letraset can be applied to the spine and front cover giving title, author, etc. Figures 6 and 7 show a cross section of construction and the final job respectively.

Any report or submission is the better for a high quality of presentation. I hope that this article will show that sound book-

binding techniques can be applied using standard materials normally found in the amateur shack, and that the use of solder is far from being an anachronism in the preparation of items such as contest logs.

FIG. 6 (below): Binding incorporating spacing bars.

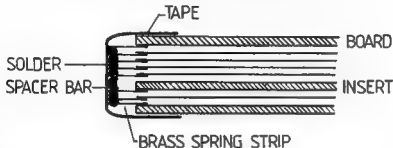
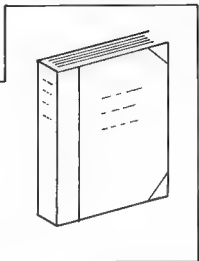


FIG. 7 (below): The completed product.



FINGERTIP SOLDERING IRON

I have a friend who is interested in electronics and who has as a result of a serious car accident lost much of the use of his hands and arms.

In spite of these disabilities he retains his interest and fortunately he can still use his index finger as a pointer almost normally. Having seen him struggling to perform a simple soldering job I got the idea of a soldering iron that could be attached to the index finger and controlled by a foot operated switch.

The finger stall is a piece of 1 in. diameter plastic conduit which, when suitably slotted, can be heated and compressed if necessary to be a neat fit on the finger.

The bit is a "WAHL" cordless iron tip, quite adequate for most electronic work. The transformer is a small 6.3 volt fila-

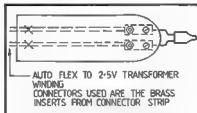


FIG. 2: Connections for the filament transformer.

ment transformer with its secondary re-wound for 2.5 volts. This was mounted in a wooden box with the actuator of a micro-switch projecting through the top to permit foot operation. The leads from the transformer to the iron were made from 10 amp auto flex. As a safety precaution the

Bruce McCubbin VK3SO
3 Kildare Street, Burwood, Vic 3125

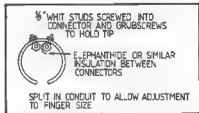


FIG. 3: Finger stall connections.

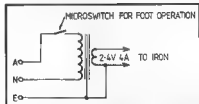


FIG. 4: Transformer with microswitch.

mains earth was connected to one side of the secondary as well as the frame of the transformer.

I see this little gadget as being of interest to other similarly handicapped people and place no restriction on the idea being used commercially or being published by other magazines.

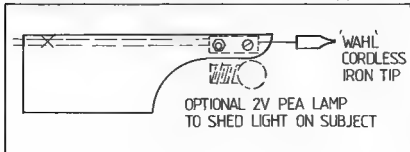


FIGURE 1: Side view of iron.

Join a New Member

ADDING RIT TO THE FRG-7 AND OTHER RECEIVERS

M. Glover VK7MG
17 Mona St., Battery Point, Tas 7000

Although this article describes a modification for the author's FRG-7 receiver it would be a valuable addition to any receiver that does not have Receiver Incremental Tuning (RIT), sometimes called a fine tuning control or a clarifier.



Photo shows position of tag strip mounted behind drum dial of the tuning control.

I recently bought the latest model of the FRG-7 but quickly became dissatisfied with the fine tuning control. This model apparently has greater selectivity than earlier models but still uses the same 5 pF variable capacitor wired in parallel with the main VFO tuning capacitor to provide the fine tuning. (If you too feel that the fine tuning coverage is a little generous there are alternative modifications previously described in AR, e.g. fitting a small 2.2-4.7 pF capacitor in series with the 5 pF variable, adding a reduction drive or a larger knob.—Ed.)

The circuit used is shown in Fig. 1. It provides a frequency swing of about 4 kHz spread over 270 degrees, thus making the tuning of SSB smooth and easy. It can be seen that the modification involves replacing the mechanical tuning with electronic tuning which consists of a varicap diode controlled by a 5k ohm linear potentiometer.

All the components are mounted on a tag strip which is drawn in Fig. 2. I used a shielded cable with two wires to connect to the 5k ohm potentiometer and a single shielded wire to connect the VFO pin TP401 on circuit board IFAF, which is mounted behind the loudspeaker. (These references apply to the FRG-7 only. Constructors modifying other receivers should connection C2, the 10 pF capacitor, to the "hot" side of the VFO tuning capacitor. Screened lead should be avoided if possible for this connection by placing the tag strip as close as possible to the main tuning capacitor and using a short length of stout wire. The shunt capacitance of the of the screened cable may cause excessive detuning and prevent proper alignment of the tuning.—Ed.)

The two black wires running from TP401 and TP402 on circuit board IFAF to the fine tuning capacitor on the front panel were removed. The fine tuning knob was removed from its shaft and the tuning capacitor carefully removed with the

a/d of a pair of long-nosed pliers. The spindle of the 5k ohm potentiometer was cut to length and, as I wished to use the original knob, the shaft was filed to fit. The hole in the front panel was carefully drilled out to 3/8 inch diameter after covering the circuit board with a piece of paper to catch the metal particles. I ran a spare nut well back on to the potentiometer, placed it in the hole and screwed on a nut from the front. The rear nut was then tightened up after setting the potentiometer to give a symmetrical swing either side of the centre when the knob was fitted.

At the rear of the drum dial there is a metal bracket or plate formed from the chassis. The top screw in this bracket nearest the IFAF board was used to secure the tag strip which holds the extra components. Connections were made as shown in Fig. 2 to complete the modification.

The capacitance across the main tuning capacitor will be a little different to the original arrangement so a slight re-alignment is necessary. Set the receiver controls so as to receive VNG on 7.500 MHz, that is bandswitch to C, preset dial to 7 MHz, MHz dial to 7 and main tuning to 500. Select LSB and centre the RIT knob. Tune up and down until VNG is heard and peak the preset control. Set the index on the main tuning dial to dead centre by means of the dial set knob on the front panel.

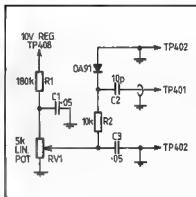


FIG. 1: RIT Circuit

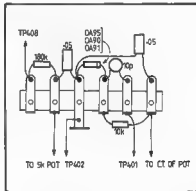


FIG. 2: Layout of RIT components

Unless you are very lucky the tuning will not indicate exactly 500. Locate trimmer capacitor TC403 on the IFAF board. There are three trimmers in a row and TC403 is the closest to the edge nearest the front panel. Adjust the tuning slightly so that the dial reads a little closer to 500 but still allows VNG to be heard. Turn TC403 so that VNG is again zero beat. Note the direction of adjustment. Set the main dial to 500 and tune VNG in exactly by turning TC403 in the direction noted. A pair of headphones will allow the most accurate zero beating of the signal.

Tune off VNG and peak trimmers TC402 and TC401 for maximum background noise. These two trimmers are next to TC403. This completes the adjustments.

I hope you are as happy with the RIT as I am.

DATA TRANSMISSION — AND HOW COMPUTERS DO IT

Barry Ross VK6IF

Nowadays, communications are becoming more complex and none so much as in the area of computers. At one time a computer was a "black box" tucked away in a back room away from the public gaze, known only to an elite few. Now Visual Display Units or VDUs and other terminals are springing up everywhere and more people are being exposed to the power of the computer. But how do we connect a VDU to a computer miles away and perhaps in another country? This article will, I hope, help to explain how it's done.

If the VDU is in the same building or complex then it is usually cabled directly to the parent computer. But if the VDU is remotely placed we must use the telephone network to connect it to the computer. The telephone system will transfer the data from computer to VDU and back again, but in a form that is not compatible with the computer or VDU, so it is converted at either end by a device known as a Modem. In its simplest form the Modem is a big brother to the well known ST-5 and similar in operation. The name Modem stands for MO-dulator-DEM-odulator.

Computers use the transmission codes known as ASCII or EBCDIC. ASCII stands for the American Standard Code for Information Interchange and is an 8 bit code having 7 data bits and one check bit called a parity bit. The EBCDIC code has 9 bits, 8 data and one check bit. The check bit is to ensure that if the character is corrupted it can be detected at the other end, error recovery can be started to re-transmit the characters so the VDU operator sees only correct data on the screen. In the higher speed transmission such as 2400 or 4800 baud another check method also is used as well as a parity bit. It is called a Block Check Character (BCC) and is made up of an addition of all the bits in a block of characters such as 256 characters and is sent at the end of the block. The VDU or computer which is receiving the block of data generates its own BCC and then compares it with the BCC received to see if the block contains any errors. By this means all error characters can be caught before they reach the screen or are printed no matter how bad the line is.

The low speed Modem sends tones down a telephone line in response to the computer making an input to the Modem +6 volts for a space or -6 volts for a mark just like an RTTY machine drives an AFSK generator. However, a telephone circuit has a response of 300 to 3300 Hz and if we keep the speed of transmission and therefore the bandwidth down it is possible to fit two sets of mark/space tones into one telephone line. This means we can have data going in both directions at the same time and this is called FULL

DUPLEX. However this is limited to speeds up to 300 bauds so to have Full Duplex at faster speeds we must use private lines and they cost a whole lot more. So for faster speeds on normal telephone lines a system called HALF DUPLEX is used. In this system we only use one set of tones and one Modem is in receive and the other is in transmit when data is sent and the Modems "turn around" to send any replies. If no data is being sent both Modems are in receive mode. The direction of transmission is controlled by the computer or VDU, depending on which one wants to transmit. This is a faster version of an RTTY contact. Fig. 1 shows Full and Half Duplex.

On faster speeds such as 2400, 4800 and 9600 bauds the bandwidth is too great to use two tones even on private lines, so we must use a different method of encoding our data. The data we are sending is formed of marks and spaces. If we say a space is represented by a 0 and a mark by a 1 we can write the condition of two consecutive bits as 00, 01, 10 or 11. If we send a single tone down the telephone line we can change its phase to represent

one of the four states of the two bits. Fig. 2 shows this. As we are sending two bits for one phase change we are halving the transmission speed down the telephone line so a 2400 baud computer link actually runs at 1200 baud to the remote end where it becomes 2400 baud again. At 4800 baud we encode 3 bits for one phase change and at 9600 we encode 4 bits. 9600 baud is the fastest speed that can be sent on normal telephone lines and even then they must be very high class lines.

There are three basic character timing methods to ensure that the computer and its terminal stay in time. At low speeds the same method as used in RTTY is popular, that is a start bit and a stop bit surrounding the data. At higher speeds this is a large overhead so we do away with the start and stop bits, and use a special character called SYN repeated up to four times at the start of each transmission which the VDU or computer recognises. As there are a number of marks and spaces in the character we can decide not only the first bit of the first data character but also the centre of each bit so that we can tolerate distortion. This timing is kept for the duration of the block and is re-established for each transmission. The third method is similar to the second in that we still use the SYN character to tell us where the data characters start but the bit timing is formed by the Modems which synchronise each other by sending bit patterns when no data is being sent. The Modem provides a clocking signal to the computer and VDU to tell it when to put a bit on the line. The data throughput is the same for the last two methods but the latter one seems to be preferred by the industry.

Well, that may have explained as clearly how it is done. It is not the full story as we have not covered items such as Polling, Multi-drop, Paket System, and the like, but that would take much more space. I hope it may make those VDUs seem simpler.

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PHOTOGRAPHS FOR AR
Don't keep them to yourself
SEND THEM IN — NOW

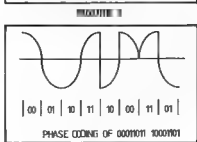
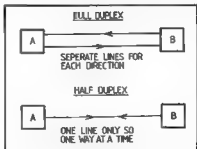


FIGURE 2

"WINNIE" THE WAR WINNER

Reproduced from "Army" August 30 edition.
Grateful appreciation is acknowledged to Major
J. Hancock, OC/Editor, in allowing us to use this
article.

In 1942, when the tide of Japanese success had engulfed the Pacific almost to Australia's shores, a tiny Aussie force was engaged in a ceaseless war against 15,000 Japanese troops on Portuguese Timor.

Its communication with the mainland was severed in February and, for almost two months, the fate of the 400-strong group was unknown.

Then, on April 18, Darwin received a transmission from Timor, and all Australian stations were warned to keep off the air and listen for more signals the following night.

They did not know that they were listening for transmissions from a conglomeration of salvaged and stolen radio equipment — including a Dutch power-pack, a Japanese battery charger, pieces of bamboo, and part of a metal can.

When the Japanese landed at Dili, Portuguese Timor, on February 10, 1942, 20 men of 2/2nd Independent Company managed to blow up the airstrip and fight their way back into the hills.

There they joined the Australian garrison of 400 commandos, known as "Sparrow-force", who were fighting a bitter guerilla war against the enemy — in spite of the fact that contact with the mainland had been severed.

It was vital for them to re-establish communications with Australia.

Soldiers of Independent Company, the Fortress Signals Section, and men of Signals, 8 Aust. Div., therefore pooled their resources to build a wireless set — their target would be Darwin.

They began their task, working from scratch without spare parts or batteries.

Sets they possessed were too weak, so a system of scrounging and raiding was organised.

The scroungers recovered buried and damaged equipment, while raids were made by fighting sections into enemy camps.

Both played their part in the construction of a set which would be nick-named "Winnie the war-winner" by its creators.

First plan was to build an oscillator with a stage of amplification necessary to work on the frequency previously used in communication with Australia.

With no receiver or instruments, this was a tall order.

But Capt. George Parker, with four men, Cpl. John Sargent, L.cpl. Max Donovan, Sig. Max "Joe" Loveless, and Sig. K. Richards, tackled the job.

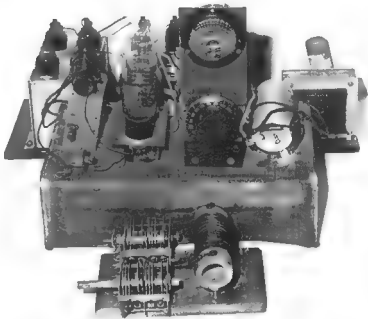
Sig. Loveless, in civilian life, was a technician with 72L, Hobart.

He began by building a transmitter with a crystal which, by luck, was close to the required frequency.

Power supply was a problem and the two available accumulators were nearly flat.

News was received that there was a charging plant in a nearby village, and the accumulators were carried there under escort to be charged.

The method of charging was quite novel.



"Winnie" as she appears in the Australian War Memorial, Canberra, today

A procedure which was adopted quite a few times eventually became known as the "boong charger".

A system of wheels, and a belt driving a car generator, was turned by natives.

As their enthusiasm for the job fluctuated, so did the charging rate.

Later, a broken-down 109 set was discovered, and the transmitter was stripped for parts to provide another amplifier for the oscillator — giving more punch, stronger signals, and a better chance of being heard.

Sig. Loveless planned the circuit and asked the commandos to keep their eyes peeled for useful parts.

Cpl. Donovan went on a scrounging trip to Attamboa, on the north coast, and returned with a power pack from a Dutch transmitter, two aerial tuning condensers,

20m of aerial wire, and a receiving set.

The task of building "Winnie" went ahead without delay.

Coils were wound on to bamboo formers, accumulators were recharged, points were soldered and valve sockets were made.

In the absence of precons tools and instruments, guesswork was a major ingredient.

A battery charger was recovered from the enemy when 14 commandos went through the Japanese lines to the old Australian HQ at Villa Maria.

The commandos, while only 100 m from the Japanese, dug up a charger which was buried when the HQ was forced to move.

On April 13, it was all systems go. The operator tried to raise Australia, but no reply was received.

As the dial of the receiver turned, sounds of music floated through the small radio shack.

Some troubleshooters were entertaining their audience with "The Last of the Hillbillies".

On April 18, after the transmitter was revised, another attempt was made to contact the mainland.

Again no reply was received, but the men's disappointment would have been assuaged had they known that their signals were picked up and passed on to Darwin.

All Australian stations were warned to keep off the air, and to listen for Timor on the following night.

A few days before April 19, "Sparrow force" HQ had given the operators two coded messages "just in case".

Joe's Loveless tuned up the rig, and a group of soldiers bunched around the set.

The "brass was pounded" and the call was given highest priority.

Although the operator was prepared to continue for a number of hours, a strong signal replied a most immediately.

With suppressed excitement he tapped out his answer.

A tin of tobacco, kept for such an occasion, was opened in celebration and a toast in coffee was drunk to "Winnie".

On the following night, contact was established again, but this time Darwin was suspicious and demanded proof of the guerrillas' identity.

Messages flashed across the Timor Sea:

"Do you know Jack Sargent?"

"Yes, he is here."

"What rank? Answer immediately."

"Corporal."

"Bring him to the transmitter."

"What is your wife's name, Jack?"

"Joan."

"What is your street and house number?"

The correct answer was given, and the Australian mainland knew that Aussies were alive and fighting in Timor.

On April 27 an Allied plane flew over and dropped parachutes with precious food and stores.

Bush wireless received the news and men who had been bare-footed to save their boots for active work were issued with new pairs.

"Winnie" had done her job.

No time was wasted in asking for bombing targets—which were promptly supplied.

Allied bombers passed overhead on their way to giving the Japanese a taste of their own medicine.

On one occasion a convoy of three enemy ships was sighted, and a message despatched to the mainland.

The RAAF sank all three ships.

As a fitting climax to her career, "Winnie" guided the rescue party which eventually took the guerrillas out of Timor.

"Winnie" now resides in the Australian War Memorial, Canberra—a symbol of Australian ingenuity in the face of great difficulty.

A FIVE BAND VXO FOR THE FT 75

Ian Benwick VK3ALZ

107 Loongana Ave., Glenroy 3046

The FT75 is a handy little unit.

On a watts per dollar basis it is hard to beat. The main disadvantage is its limited coverage with the internal VXO. An external VFO can be used, however this can be prone to vibration induced frequency excursions when mobile. The solution adopted by the author is a VXO with some novel features.

which is filtered before being presented to the transceiver

The specification of the VXO is as follows:

Band (MHz)	VXO output (MHz)
3.5	8.6724 - 9.1724
7.0	12.1724 - 12.6724
14.0	8.6278 - 9.3278
21.0	15.8278 - 16.3278
28.0	11.4138 - 11.9138

Note that because the FT75 doubles the external VFO frequency internally for 28 MHz operation on this band the VXO covers 1 MHz in five 200 kHz sweeps. The output voltage is in the range of 250 to 700 mV RMS which matches the requirement of the FT75 mixer. The spurious product frequencies were calculated by Alan VK3ZHU and Ron VK3AFW, and only one of significance was predicted. This was in the 21 MHz band and is well attenuated in practice by the filters, and the screening employed.

The VXO was built in three separate compartments, one containing the VXO and associated doubler, one the carrier generator and the third the converter units. Each of these compartments are 7 1/4 in. x 3 1/4 in. x 4 1/4 in. diecast boxes. The carrier filter units are built into small tinplate enclosures external to the main boxes. This makes the VXO rather bulky, however there is plenty of scope to make a more compact arrangement.

The VXO has been in use now for several years at home and in the vehicle while mobile with excellent results. The stability is excellent and no report of frequency shift has been received.

Compared to an LC VFO a VXO is several orders of magnitude better for frequency stability under all conditions. Experiments showed that the frequency swing I required—100 kHz—could be obtained using HC-25 crystals in the 28 to 28 MHz region if they were subsequently doubled to 53 MHz. For a 500 kHz range five crystals were required, plus one heterodyning crystal per band or ten in total.

Now since the frequencies for 3.5 MHz and 14 MHz are almost the same and the frequencies for 7 MHz and 28 MHz are reasonably close only, three frequency converters were used to cover the five bands.

The block diagram of the system is shown in Fig. 1. The basic VXO covers 26.550 to 26.800 MHz in five ranges. Then the output is doubled to give a continuous range of 53.100 to 53.600 MHz which is filtered to reduce spurious signals that could be generated. A switch is used to select a converter and associated heterodyne carrier generator. This provides the required signal frequency for the FT75

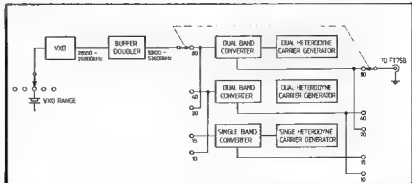


FIG. 1: FT75B VXO Block Diagram.

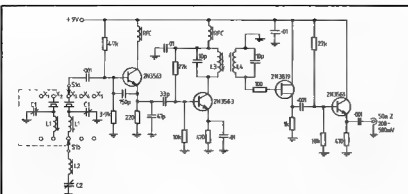


FIG. 2: 26 MHz VFO.

- X1 - 26590 kHz
X2 - 26640 kHz
X3 - 26690 kHz
X4 - 26740 kHz
X5 - 26790 kHz
(All crystals HQ GC25A)
RFC - Single wire through F29 slug
L2 = 7.5 uH
L1 = 30I 32 B and S on single neosid
F29 slug
C1 = 2-10 pF concentric ceramic trimmer
C2 = 5-100 pF polar single gang
L3-L4 - dual neosid 20th each 32 B and
S F29 slug

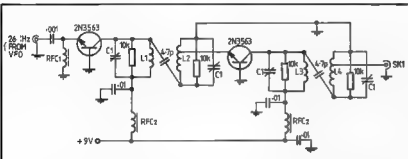


FIG. 3: V XO Doubler and 53 MHz Filter.

C1 = 2-14 pF Ceramic disk Trimmer.
RFC1 = 100 uH.
L3, L4, L5, L6, L7 7 turns 1/2 in. diam.
16 B and S.
L4, L5, L7 tap 1 turn.
L1, L2 11t on Aegrie 3/4 in. slug tuned
former.
L2 tap one turn from cold end.

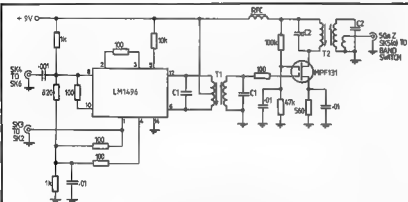


FIG. 4: Converter Unit.

NOTE:
One each converter for 80/20m.
One each converter for 40/10m.
One each converter for 15m.
RFC = Single wire through F16 slug.
T1, T2 dual nosid.

TABLE 1: Table of Values — Converter Unit.

Band	T1 Turns	T2 Turns	Tertiary	C1	C2	Slugs
80/20	P 30t CT	P 30t		47 pF	47 pF	F16
	S 30t	S 30t	4t			
40/10	P 29t CT	P 29t		47 pF	47 pF	F29
	S 29t	S 29t	4t			
15	P 25t CT	P 25t		33 pF	33 pF	F29
	S 25t	S 25t	4t			

FIG. 6: Single Carrier Generator.

X = 3723.0 kHz (QC 25A3 — HIQ)
L1 = 6 turns $\frac{1}{2}$ in. ID tap 1 turn 16
B and S.
C1 = 2-14 pF ceramic disk trimmer

NOTES ON THE CONSTRUCTION AND ALIGNMENT

OKA

The 26 MHz VXO should be built first and aligned as follows:

(1) Tune L3 and L4 to give 200-500 mV RF output at the emitter of the 2N3563 with any crystal selected. If no oscillations occur set C2 mid-range and tune L1 for

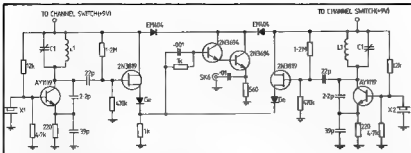


FIG. 5: 2 Channel Carrier Generator
(2 off required)

	xtal	Band
X1	44428.0 kHz	80m
X2	40928.0 kHz	40m
X3	44273.0 kHz	20m
X5	41686.0 kHz	10m
(All crystals — QC25A3 — HIQ)		

C1 — 2-15 pF Trimmer (Ceramic).

L1 — 6 turns ½ in ID
16 B and S enamel.

the appropriate crystal until oscillations are obtained

(2) Connect a frequency meter and check that approximately 50 kHz tuning range can be obtained. Adjust L1 and C1 until a linear sweep of 50 kHz is obtained for 0 to 95 per cent of the dial sweep.

The dial can then be marked for, say, 10 kHz steps or a tabulation made of frequency against the dial's arbitrary scale.

Repeat the procedure for the remaining ranges.

VXO DOUBLER

Tune the various capacitors C1 to obtain a constant output at skt 1 over the range 53.1 to 53.6 MHz.

53 MHz FILTER

Adjust the capacitor C1 for constant output from 53.1 to 53.6 MHz at skt 2. The output should fall rapidly outside this range.

CARRIER GENERATORS

There is only one adjustment for each crystal—tune C1 for maximum level of oscillation at skt 6.

CARRIER FILTERS

Align the filters for maximum throughput of carrier energy by adjusting C1.

CONVERTER UNITS

With appropriate carrier generator plus filter connected and the VXO doubler and filter also connected attach a sensitive RF detector to the output of the converter. Adjust T1 and T2 to give a constant output over the range applicable. An output of 250-700 mV should be obtained.

FREQUENCY CALIBRATION

The VXO setting up procedure has already been described. If five scales are provided these can be used for individual calibrations for each 100 kHz range. With a good dial, readout accuracy to 1 kHz is achievable. The next step is to set the carrier oscillators so that the VXO readout is accurate for each band. Select 3.5 MHz and set the VXO dial to 0 (53.100 MHz) and check the output frequency. If it is not 8.6724 MHz adjust the 44.428 MHz crystal by adding shunt C or series L. It is assumed that the carrier generator in the FT75 is on 51.724 MHz. It would be wise to check the CW output frequency of the rig. The adjustments for the other bands are made in a similar manner. Note

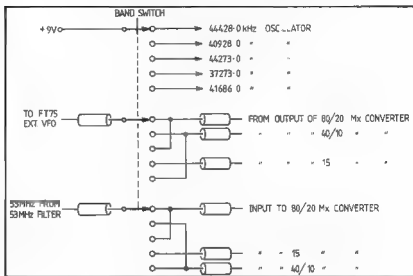


FIGURE 7: Band switching

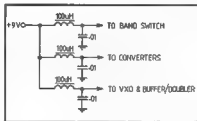


FIG. 8: Supply filters

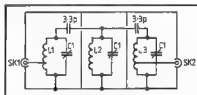


FIG. 9: Carrier filters

L1, L2, L3, 7 turns ¼ in. ID tap L1, L3 one turn C1 2-14 pF ceramic disk trimmer. One filter required between each carrier generator and band switch.

that 500 kHz needs to be added to the dial reading for 3.5 MHz only.

The band-switched heterodyne VXO principle of frequency synthesis is, as far as the author is aware, a new development and therefore copyright is reserved on the following circuits and drawings:

1. 26 MHz VXO unit.
2. Block diagram.
3. Two band carrier generator circuit.

No restriction is placed on use of these by groups or individuals for hobby purposes.

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Automatic recycling restarts tuning at the top of the band, i.e., 145.9999 MHz when the dial goes below 144.000 MHz. Recycling changes 148.1999 MHz to 143.8000 MHz as well. Quick tuning is 1 KHz steps is available, and fine tuning in 100Hz steps in the SSB and CW modes, and 5 KHz steps and 1 KHz steps in the FM mode, is provided for trouble free QSO.

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GENERAL: Number of semiconductor transistors 72. FET's 9. IC's 44. Diode 90. Frequency coverage 143.8000 — 148.1999 MHz. Frequency resolution 500 Hz. 100Hz steps FM. 5 KHz steps 1 KHz steps with TS button depressed. Frequency Control Microcomputer based 100Hz step Digital PLL synthesizer. Independent Transmitter/Receiver Frequency Capability. Frequency Readout 7 digit LED 100Hz readout. Frequency stability Within ± 1 KHz. Memory channels 3 channels, any band frequency programmable. Usable conditions: Temperature -10°C — $+60^{\circ}\text{C}$ (14.4 F — 140 F). Operational time Continuous. Antenna impedance 50 ohms unbalanced. Power supply supplement 13.8V DC $\pm 15\%$ (negative ground). 3.5A Max. Current drain at 13.8V DC. Transmitting SSB (PEP 10W) Approx 2.2A. CW FM (10W) Approx 1.1A. FM (1W) Approx 1.6A. Receiving At max audio output (A) Approx 0.8A. Squelch Approx 0.6A. Dimensions 64mm (H) x 185mm (W) x 223mm (D). Weight Approx 2.7Kgs. Warranty 90 days when purchased from authorized dealer. **TRANSMITTER:** Output power SSB High 10W PEP Low 1W PEP CW High Low 1W FM High Low 1W. Emission mode SSB (A2), USB (LSB) CW (A1) FM (F3) Modulation system SSB Balanced modulation FM Variable reactance frequency modulation. Max frequency deviation ± 5 KHz. Spurious emission: More than 50dB below spurs power output. Carrier Suppression: More than 40dB below peak power output. Unwanted Sideband: More than 40dB down at 100KHz AF input. Microphone 1 K ohm dynamic microphone with built-in preamplifier and push-to-talk switch. Operating mode Simplex Duplex (Any band frequency separation program-mable). **RECEIVER:** Receiving system SSB CW Single conversion superheterodyne FM Double conversion superheterodyne. Receiving Mode SSB (A3) USB (LSB) CW (A1) FM (F3) Immediate frequency SSR CW 10.75 MHz FM 10.75 MHz ± 5 KHz. Sensitivity SSB CW Less than 0.5 microvolts for 10dB S+N/D+N ± 2 dB 1 microvolts for 20dB. Noise quieting Squelch sensitivity Less than 0.4 microvolts. Spurious response rejection ratio More than 60dB. Selectivity SSB CW More than ± 2 KHz at 6dB point. Less than ± 2 KHz at 60dB point. FM More than ± 7.5 KHz at 60dB point. Audio output power More than 2W. Audio output impedance 8 ohms.



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This article has been adapted from
an article originally printed in the
WIA SA Division.

IMPROVING 1st IF RESPONSE

This modification is aimed at improving the receiver section with respect to weak, off-frequency, or heavily deviated signals. As with many other modern narrow-band units the standard Kyokuto mute and audio system can be susceptible to "popping" under the above conditions, the severity depending on the way the receiver was aligned. Most amateurs tend to tune their newly-acquired units to ensure maximum sensitivity. The way this is done is to get a weak, steady signal source and peak the receiver for maximum signal strength or maximum quieting. Whilst this may improve the basic sensitivity for an unmodulated carrier, in the Kyokuto any reasonably high modulation now causes the mute to close, as the IF bandwidth is

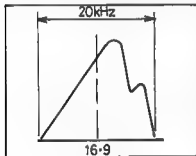


FIGURE 1

now very narrow, with shape likened to a church steeple as in Fig. 1. Notice also that the peak is not on centre frequency due to mismatch of the 16.9 MHz filter.

The factory has partially overcome this problem by their method of alignment, which can only be described as a fiddle to cover up a basic design fault. They do not tune the receiver for maximum sensitivity, but for minimum distortion on a Noise and Distortion Meter, with the required deviation applied from a Signal Generator. This has the effect of broadening the IF response to detuning associated transformers to match the filter, but the sensitivity decreases. A standard Kyokuto, as received from the factory, was swept on a spectrum analyser and gave a picture

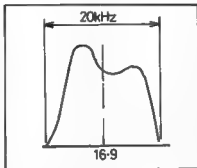


FIGURE 2

as in Fig. 2. Still obviously not good. If the IF is swept carefully with a good spectrum analyser or sweep generator whilst aligning it is possible to get a symmetrical response as in Fig. 3, but as you see it is still far from satisfactory, having somewhere near a 10 dB hole in the middle. All these problems are due to the incorrect matching of the mixer drain coil to the first IF filter (16.9 MHz). By correctly matching this filter to the mixer output a response as in Fig. 4 can be obtained. This shape is ideal as you can see, with 20 kHz passband, less than 2 dB ripple and very symmetrical.

Matching of the filter can be done in several different ways, all achieving similar results. We believe the easiest, quickest effective way is to fit a small active match-

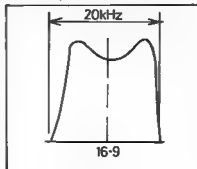


FIGURE 3

ing circuit. Simply a source-follower circuit, it allows the filter to "look" into a low impedance source, while the drain of the mixer can operate into a "high Z" load, enabling this coil to be peaked for maximum gain. This modification has been carried out with pleasing results.

KYOKUTO IF FILTER MODIFICATIONS

Slip cover off Kyokuto, undo 4 screws securing the receiver board and tip the board over to expose the tracks. Cut track between Q2 drain and filter input circuit. Solder the Fig. 5 modifications coupling capacitor, FET and resistors to the underside of the PCB, keeping all leads as short as possible. Check that you have the correct pin connections for the FET which you use as they are not all identical. The +9 volt rail is picked up from one of the

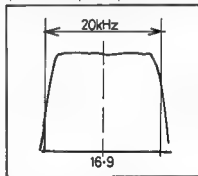
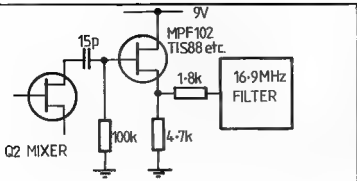


FIGURE 4

47 ohm decoupling resistors. Replace the board after very careful checking of all work. Turn on, find a weak but steady signal and repeat coils L5, L6 and L7. No fancy test equipment is required.

The increase in gain due to this modification is about 10 dB. You will now have a flat bandpass, a receiver as sensitive as the best and be far less troubled by heavily deviated signals. If any popping now exists, it is purely over-deviation from the transmitting station. Unfortunately, rigs received in VK are not adjusted to a standard deviation, but vary from one brand to another if the deviation is too



high, speaking back from the microphone is no cure. This also must be adjusted.

To improve output power and reliability of units such as the Kyokuto and others, some attention must be placed on the output stage. Look for a small 30 pF variable capacitor in parallel with the series output tuning trimmer. In the PA section under a smaller clip-on lid many of these capacitors have failed in service and why they are fitted is a real mystery. Removal of this partly-meshed capacitor immediately permits a rise in output power which indicates that the capacitor is slightly lossy.

ANOTHER AF FILTER

Jim Jones VK8ZJJ

No claim is made for the originality of this circuit; in fact, it is adapted from a well known British circuit originally published in the RSGB Handbook. However, it has been modified to operate on a rail voltage of 12, and has selectable bandwidth characteristics.

This circuit has been incorporated into a number of FRG-7 receivers, replacing the original passive tone control circuits.

OPERATION

A twin 'T' network is used with two field effect transistors to obtain the desired characteristics. The gain of the circuit, at the centre of the passband, is approximately one.

CIRCUIT

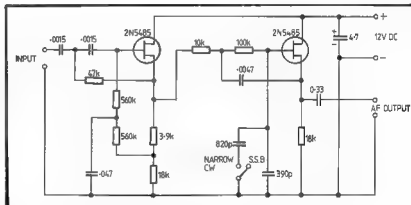
The bandwidth of the circuit, with the 820 pF capacitor in the gate circuit of the second FET switched out, is,

	F (lower)	F (upper)
- 3 dB	520 Hz	2.5 kHz
-20 dB	230 Hz	6.6 kHz
(Wide bandwidth)		

With the capacitor switched in:

CONSTRUCTION

The circuit may be constructed on Vero board or a simple printed circuit made.



The layout is not particularly critical, but the leads should be kept short and normal solid state circuit techniques followed.

KEYWORDS: child abuse; child sexual abuse; child sexual exploitation; child sexual abuse investigation; child sexual abuse assessment

As with many of these circuits the actual results achieved in an operational situation will largely depend on the operator's perceptions of the improved performance or otherwise.

As the circuit is relatively simple it is suggested that the unit be built and the appropriate operational tests made, before the circuit is hard-wired into the station receiver.

In the receivers I have tested with this modification, noise and interference were reduced. In my opinion, this would reduce the stress on the operator, especially in a contest situation, or when endeavouring to resolve those marginal DX signals. ■

OSP

CAR ELECTRONICS INTERFERENCE

Is there not a possibility that RF from mobile transmitters may affect the often unshielded electronic systems in modern motor vehicles? For example a flasher unit (traffic indicator) fitted in a Volvo did strange things whilst transmitting 40W out on 2m—ranging from no flashing to flashing at 2 or 3 times normal rate. This was cured by interlinking the three terminals of the flasher unit with 1000 pF disc ceramics. Other examples of the risk of RF interference to vehicle electronics were the possibilities of RFI to electronic fuel-injection systems and anti-skid devices of trucks.

Techn. Topics, Radio Communications, November 1979.

BREAK-IN

The WIA maintains reciprocity with NZART about subscriptions to their magazine Break-In published every month, of which the June issue is their call book. If you would like to keep in touch with trans-Tasman affairs send \$12 to WIA Magpubs, Box 150, Toorak, Vic. 3142, for a direct subscription to Break-In.

A PEEP INTO THE PAST

Eric Trebilcock L30042
Thornbury Vic.

Through the good offices of Mr. Keith Leonard, a mutual friend of mine (of Kew, Vic.), I recently perused 200 or so QSL cards which came the way of his late father in the mid-20's (Mr. Leonard senior was, at the time A3EN, Drouin, Vic.).

As a result of the aforementioned browse, I had my memory refreshed in more ways than one (I got SWL "started" in 1926). I thought it would interest oldies and newbies alike to learn of some of the things I discovered as I read each card's content. Such things as:—

- A3BQ (Max Howden) had a Tx "mast" 80 feet high; A3WM (now VK3BCM) (Bill McAuley) was, like A3BQ, one of the busier of the Australian stations of the era.
- Many "W" stations (they had the prefix "W" in 1925) used 3000 volts on the plate of the final stage tube!
- It was 104 degrees F in Adelaide (VK5) on 3-12-26.
- Both VIB and VIM (coastal radio stations in Brisbane and Melbourne respectively) caused endless QRM to stations using the amateur frequencies!!
- A5BG (the late Harry Kauper) appeared to be one of the few users of crystal control in those days in Australia.
- The two most popular records legally played by amateurs in the 100 to 200 metres band were "The Grandfather's Clock" and "Oh Them Golden Slippers".
- QSL card sizes in 1925-1926 were slightly smaller than in 1979.
- The three most popular Tx circuits were split Colpitts, loose coupled Hartley and Meisner.
- The front line antennae were vertical, 4 wire cage and counterpoise, 60 feet umbrella, half wave Zepp.
- In the Rx area, 2 valve detector and 1 audio, Schnell special, Armstrong and Zenith Reinartz led the way.
- Many of the CW reports contained reference to "chirpy" and "wobbly" signals, and to the fact that the other fellow's signal suddenly took off for an adjacent frequency!

TRY THIS WITH THE TECHNICAL EDITORS

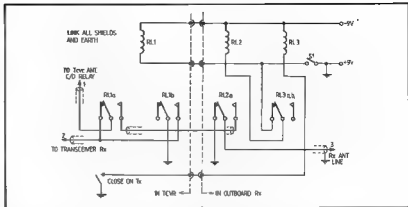


FIGURE 1: Change-over wiring

USING A SECOND RECEIVER

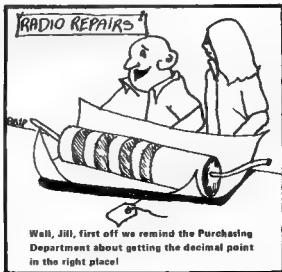
Often a separate receiver is used by the author in conjunction with the station transceiver. The circuit, Fig. 1, shows how this is done.

The transceiver antenna lead was cut between the transceiver changeover relay and the receiver input circuit. Connections were made to points 1 and 2 as shown. RL1 was installed in the transceiver. RL1a changes the antenna from the transceiver receiver to the outboard receiver when S1 is closed. RL1b grounds the transceiver receiver when S1 is closed. With S1 open, transceiver operation is normal.

It was felt that the outboard receiver antenna lead, point 3, should be grounded during transmission and as a spare contact that closed on transmit was available. RL3 was added to open the supply to RL2 on transmit.

The 9V supply to the relays was obtained from the receiver. S1 may be the "on/off" switch in the receiver, suitably rewired. All relays are DPDT of miniature construction. The contacts of RL3 are connected in parallel. A 5 pin plug and socket system could be used for connections between the receiver and transceiver.

John Taylor VK3AJT.



From ARRL
Instruments
Newsletter
No. 13

"Listening across the world"

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HAVE THEIR CAKE AND EAT IT AS WELL!



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The R-1000 is a high cost general coverage receiver covering 30 bands from 200kHz to 30MHz with a PLL synthesizer that incorporates a variety of KENWOOD'S sophisticated electronic technology acquired over many years. Both a digital display readout (1kHz step) and analog dial are provided for more convenient operation.

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Due consideration has been given to innovative design and compactness, making the R-1000 an indispensable sub station for amateur radio operators, semi professionals, BCL's and SWL's, etc.

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Q&P

A STORY ABOUT FOUR PEOPLE

This is the story about four people named Everybody, Somebody Anybody and Nobody

"There was an important job to be done and Everybody was asked to do it. Everybody was sure that Somebody would do it. Anybody could have done it, but Nobody did it. Somebody got angry about that because it was Everybody's job. Everybody thought: Anybody could do it, but Nobody realized that Everybody wouldn't do it. It ended up that Everybody blamed Somebody when actually Nobody accused Anybody."

ASCII

In the editorial of QST December 1979 the ARRL was pleased to note that their FCC are formulating rules for allowing USA amateurs to use ASCII in their transmissions. The comment was made that the FCC would be taking notice of the problems which would arise if amateurs themselves (and the FCC) must or should retain the ability to police itself. This could arise if non-standard forms of amateur radioteletype codes were to be authorised.

VEHF CONVENTION

Break-in December 1979 contains details of the VHF Convention to be held at the Sherwood Motor Inn, Palmerston North, New Zealand, from 4th to 7th April (Easter), 1980. Registration before 1st March and details available from Conference Committee PO Box 1718, Palmerston North, NZ, for anyone likely to be across the Tasman at that time.

AMATEUR NOTABILITIES

In August last Prof Francesco Cosulich was elected Premier of Italy. He is IAPCG, a well known radio amateur and a member of ARRL for many years.—QST November 1979.



QYS

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Authorised Australian Yaesu agents since 1963, are moving our warehouse to more modern premises in Wangaratta on 1st March 1980.

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STAN ROBERTS VK3BSR

BAIL ELECTRONIC SERVICES

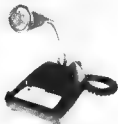
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AMATEUR SATELLITES

R. C. Arnold VK3ZBB

Our working satellites, AMSAT OSCARS 7 and 8, continue to perform satisfactorily on all modes and many interesting contacts have been heard. A welcome newcomer to the OSCAR scene has been Peter H44PT, in the Solomon Islands.

As I forecast, some of the predictions for January and February have been incorrect and I note that AMSAT will not publish advance predictions for the satellites for 1980. I suggest the best way to keep up to date is to become a member of AMSAT and receive the new magazine "Orbit" which will carry predictions in each issue. The cost of joining AMSAT, until July, is \$US10.00 per annum plus \$US3.00 for airmail postage of "Orbit". Amateurs engaged in other interests such as moonbounce, meteor scatter as well as satellite operations, will be catered for in the new magazine. If you are interested in joining AMSAT please write direct to them at Post Box 27, Washington, DC 20044, USA.

Last month I mentioned that Bill VK3TT had agreed to act as Educational Co-ordinator for the Phase IIIa spacecraft, and I am looking for a volunteer to act as Co-ordinator for the CW/RTTY transmissions. Please let me know if you would be prepared to undertake the monitoring of transmissions for the spacecraft and forwarding the information you obtain to AMSAT.

I have now received my first communication from Pat Gowen G3IOR, the overseas Co-ordinator of AMSAT, and his first AMSAT Phase III countdown report is reproduced below.

The main news of this issue is that of the successful launch of the LO-1 mission from Kourou, with its payload now in the nominal 635.3 minute, 17.55° inclination, 0.73 eccentricity orbit, with a 36,010 km apogee and 202 km perigee. Following two delays, the first due to a faulty sensor, the second caused by bad weather, the perfect launch resolved on 24th December, 1979, and was broadcast by AMSAT on 28.880 MHz. Our congratulations go to all involved with our thanks for such a wonderful Christmas present!

All is now set for the launch of LO-2, carrying both the FIREWHEEL and AMSAT Phase III satellites, between 1500 and 1800 UTC, with 1700 optimum on 30th May.

Work continues on the preparation of the spacecraft, with action by WD4FAB in

applying the 1/8 in. thick CAPTAN blankets for thermal insulation, held by VELCRO fasteners and wedding lace. W3PK is working on the Telemetry encoder, and the interface between the sensor electronics and the computer. The computer is almost de-bugged, and is running well. The final antenna parts are being machined in California, whilst further work on the 435 MHz uplink receiver with its new front-end has produced a better than 3 dB NF. The transmitter exhibits 49.5 per cent efficiency at 25 per cent drive, and 54 per cent efficiency at 100 per cent drive, and is giving 54 watts PEP from its DOHERTY amplifier. Work progresses with the command receiver, and the motor ignition circuit is being checked out. The battery charge regulator has been received from HGSBME, and the solar panels are attached. Three Telefonken and three Solarex panels will be flown.

Final tests on the antennas show a smooth pattern from the low-gain Omni system but a measurable lobe pattern is exhibited from the high-gain spooze antennas on both 70 cm and 2m that would cause a 1.5 kHz "ripple" from the spinning satellite to linearly polarized ground stations. For this reason users should plan for right-hand circularly polarized (e.g. conventional screw-thread) both for uplink and downlink, particularly on 435 MHz.

The projected orbital parameters for AMSAT OSCAR 9, once in orbit, have been changed back to that originally projected, and following the firing of the kick motor some 21-24 days after insertion into the transfer orbit, the planned orbit will have a 656.2 minute period, a 35,786 km apogee, and a 1,500 km perigee. Intercommunication between all continents will be possible without the problem associated with skip differential and variable solar conditions as evidenced on the HF bands.

Replies to our invitation to societies to utilize the special service channels are still arriving, and at 1st January we have had interest from ARRL, RSGB, RSF, EDR, SRJ, SARL, NRL, VERON and Puerto-Rico. AMSAT are seeking continental and national co-ordinators to collate the needs of their own areas, and to inter-communicate these with the special channel co-ordinators as listed in "Phase III Countdown" No. 2. Regional aid is sought for the scientific and educational channels, and stations with Phase III capability are sought in the USSR and in Japan to cover the 7 p.m. to 11 p.m. local time slot allotted to their areas to put out messages in their own language, and to give advice and information whilst the transponder is on for special periods during the transfer orbit. Tapes in the major languages are needed to carry information via ground stations to assure wide coverage of information. AMSAT need some gold-plated piano wire for the antennas,



PHOTO 1: Bob VK3ZBB in the shack

and need new members to support the project with donations.

Many excellent Phase II articles are available from G3AAJ, which may be translated and printed in any IARU Society magazine free of charge. Updated news on Phase III may be found on the 21.280 MHz 1900 UTC Sunday AMSAT net and between 1400-1700 each weekend day on 28.880 MHz where AMSAT members gather to meet.

Special thanks to Steve Place WB1EYI, who following editing this information sheet is now concentrating upon the educational aspects, and from AMSAT best wishes to all in 1980, which promises to be an exciting year for the amateur radio fraternity.

Pat Gowen G3IOR.

ORBIT PREDICTIONS — MARCH 1980

OSCAR 7				OSCAR 8			
Date	Orb. No.	Eqz Z	Eqz *W	Date	Orb. No.	Eqz Z	Eqz *W
1	24208	0044	79	10132	0025	59	
2	24221	0138	63	10148	0030	57	
3	24233	0037	78	10190	0036	58	
4	24245	0151	82	10174	0040	60	
5	24259	0030	76	10188	0045	61	
6	24271	0124	90	10202	0050	62	
7	24283	0024	75	10216	0055	64	
8	24296	0168	88	10230	0100	65	
9	24308	0017	73	10244	0105	68	
10	24321	0112	87	10258	0110	68	
11	24333	0011	72	10272	0115	69	
12	24345	0105	85	10286	0120	70	
13	24358	0004	70	10300	0125	71	
14	24371	0059	64	10314	0130	73	
15	24384	0153	97	10328	0135	74	
16	24396	0052	82	10342	0140	75	
17	24409	0147	98	10356	0001	51	
18	24421	0048	81	10369	0008	52	
19	24434	0140	94	10383	0011	53	
20	24445	0039	79	10397	0015	54	
21	24459	0134	03	10411	0021	55	
22	24471	0033	78	10425	0028	57	
23	24484	0128	91	10439	0031	58	
24	24496	0027	81	10453	0036	59	
25	24509	0121	90	10467	0041	60	
26	24521	0020	74	10483	0046	62	
27	24534	0116	88	10495	0051	63	
28	24546	0014	73	10509	0056	64	
29	24559	0108	87	10523	0101	65	
30	24571	0007	71	10537	0106	67	
31	24584	0102	85	10551	0111	68	

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REVERSE REPEATER MODIFICATION FOR THE YAESU FT-227R

The Yaesu FT-227R two metre FM transceiver appears to be rather popular with FM enthusiasts at the moment. It of course offers full coverage of the entire two metre band in effectively 5 kHz steps. It however lacks one important feature, that of instant reverse repeater operation. It's a fairly simple procedure to dial up the required frequency, but under mobile conditions this would involve a short distraction from driving concentration. However all is not lost. Don Moyle VK3YOG has come up with a simple modification to provide in-

In January 1980 issue, the text of this article was printed without diagrams. Murphy apologises — the complete article is now presented.

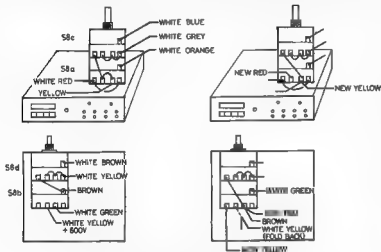
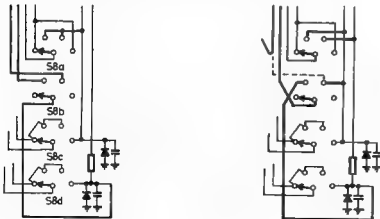


FIG. 1(a) and 2 (left top and bottom) show the 227R as standard, while FIGS. 1(b) and 3 (right top and bottom) show the modified version.



stant reverse operation by selecting the ± 600 kHz position on the mode switch. No other facilities are changed. Now over to Don to tell the story.

"This simple modification can be carried out utilising the plus 600 position, which is of little use at the present time. If you have been using the memory to provide reverse receive on a particular repeater it can now of course be used on a simplex channel. In the new ± 600 position, the display will read as dialled but this will now be the transmit frequency, receive being 600 kHz below.

It is all accomplished at switch S8, by cutting away one wire, transposing two others and by adding two new links. As this involves getting at all sides of S8 start by removing the front panel from the transceiver and then free S8. By following the 'Before and After' circuit diagrams you will have no trouble, however a small fine tip soldering iron is necessary.

In conclusion it might be of interest to point out that the FT-227R instruction books do not always give correct alignment data. In several cases alignment points are incorrectly identified. Check carefully TC-302 through TC307. In my book, an early one, they are all identified one number lower than they actually are. It appears that later books have corrected this particular one but that other errors are possible."

MODEL 444

SHURE

CONTROLLED MAGNETIC® COMMUNICATIONS MICROPHONE

GENERAL: The Model 444 is a Shure-operated CONTROLLED MAGNETIC microphone. It is specifically designed for radio communication applications and provides optimum performance from single subband transmitters as well as AM and FM units. The response cuts off sharply below 300 and above 3,000 Hz, with a rising characteristic to 3,000 Hz. This special response characteristic results in optimum speech intelligibility and audio punch to cut through noise and interference.

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SPECIFICATIONS: longest element 10.6M (35'), turning radius 5.67M (19'), VSWR 1:1, weight 21Kg, F/B ratio is 25db or better, handles 3KW and has a gain of 10db on each band. Priced at \$350 (new price on TH6-DXX close to \$500 and TH3-JR close to \$300), it's sure to be a winner.

Increased prices on Ham-3 and T2X Tail Twister rotators are the result of increased prices in USA and increased shipping costs.

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ANTENNAS

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TH6-DXX 10-15-20M, 6-el. yagi.....	\$300
204-BA 20M, 4-el. Tiger array.....	\$220
18-AVT/V8 10-80M vertical.....	\$110
GPV-5 2M vertical collinear 2 x 5/8 wave.....	\$48
OSCAR-2-2M mobile 1/2 or 5/8 wave complete with gutter mount, cable & plug.....	\$27
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KEN KS-065 stay/thrust bearing.....	\$25
CDR BT-1A light duty 4 position push button program- mable. Plus normal operation 120V AC.....	\$85
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RG-8U foam coax cable, per metre.....	\$1.00
8-cond. rotator cable, per metre.....	75c

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Voltage regulator 18V AC Input, 12V DC 3A output	\$18
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PL-259, SO-239, cable joiners, each.....	80c
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Mike sockets 3 & 4 pin, each.....	80c
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10M sideband SE-602 USB/AM 15W PEP-240V AC, 12V DC, inbuilt SWR/RF meter, 28.3-28.6 MHz clarifier tuning transmit and receive.....	\$90
10M Universe 224-M, USB/AM, 15W PEP 12V DC, 24- ch. 28.480 to 28.595 MHz, 5-Khz steps-clarifier tuning transmit and receive.....	\$95
CONVERSION CRYSTALS for amateur licence holders - set of 8 crystals to convert 23-ch, 27-MHzCB units to 28 MHz. Suitable for Kraco, Sideband, Universe, Hy-range V etc., converts as per Universe 10M above — CRYSTALS & INSTRUCTIONS.....	\$32
Set of 4 crystals converts to 28.3-28.6 MHz.....	\$15

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AMATEUR BAND BEACONS

520000 FYYTHF — French Guinea
52 100 KHSEGI — Pearl Harbor †
52 150 VK6BC — Casey Base †
52 160 VK6K — Atherton
52 250 ZLZYVM — Palmerston North †
52 500 JA1Q1V — Nagoya
433 180 ZL1VHW — Walailak

† Denotes attended operation

† Denotes frequency change

† See notes

Full beacon list appeared in AR February 1980, page 30

Advice has been received from Harry Wiggins ZL2BFR Beacon Trustee, that the ZL2VHM beacon on 52 500 has had a frequency change to 52 250 MHz, to enable the beacon JA1Q1V in Nagoya, Japan to be monitored. The location of ZL2VHM remains the same. The Menawatu Branch also operates the beacons on 45 250 and 433 250 MHz and reports of any of the three beacons would be welcome and a QSL card is available for such reports. Reports should be sent to Beacon Trustee, PO Box 1778, Palmerston North, New Zealand.

The VK5SK beacon on 52 150 s to be located at Atherton on York Peninsula, where David will be taking up residence, distance about 119 km north-west of Adelaide

The Beacon and Repeater Co-ordinator for the North-West Branch of the WIA in Tasmania, Tony VK7AA, advises the 70 cm beacon VK7RTW has been taken out of service for the time being due to some technical problems. It is anticipated the whole beacon will be reconstructed to a solid state device. Tony also mentions the "new" beacon I spoke of in the January issue will in fact be the old beacon VK7RTW coming out as an updated version, and the new frequency will be 144.70 MHz in accordance with the WHP/IRP Advisory Committee suggestions for beacon frequencies. I am to be advised when the change is to be made.

The VK6BC beacon will probably be in some doubt. Plans to have Brian VK6BC operate a new beacon supplied from Australia came unstuck to a degree when it was learned Brian would be returning to Australia at the end of January 1980. But currently we are still holding a fully settled pace of equipment here in VK6 for use as a beacon if we can find a custodian!

SIX METRES IN THE WEST

Tony VK6SV has written outlining how the past few months have treated his area on six metres. What does stand out most dramatically in his report is the number of occasions JAs were observed on 50 MHz but not 52 MHz! Between 21-27 and 23-31 JAs were evident on 50 MHz on 27 different days between about 0600 and 0900Z, but only available on 52 MHz on 9 days of the 27. This is a very good indication of the large number of contacts we are missing out on as a result of our 2 MHz separation from the other Pacific areas.

First JAs were worked by Tony in Northern on 5-9 with JA2 and 3. Then on 22-9 JA1, 3, 4, 6 and 0 from 0633Z 0-10 JA2 0355Z 3-10 JA1 and 2, plus HJ3TG 2510 to 0603Z 6-10 JA1 and 2 from 0951 to 0510Z 6-10 JA1 at 0646Z 11-10 JA1, 2, 4, 6, 7, 8 and 0 from 0646 to 0659Z 13-10 JA1 and 7, 0730Z 27-10 JA1, 2 and 4 0640Z. Then on 25-11 first EA to VKs VK6WD and VK6ZKO worked to ZL 26-11 JA signals VK6ZKO worked to Alice Springs at 0220Z. On 2-12 Tony

worked VK6GX at Carnarvon on 6 and 2 metres as d'd the station.

The EA season at Northern was in keeping with other VK areas, contacts being made only on 4-12 to VK1, 2, 3 and 4, 5-12 VK3, 5 and 7, 14-12 VK3 and 5, 16-12 VK4 and 6 (Alice), 23-12 JA1, 7, 9, heard 2, 3, 4 and 6. On 30-12 worked VK2, 3, 4 and 5. He hopes 1980 may be a little kinder. Thanks Tony

NEWS FROM CARNARVON

Andy VK6XOZ in a letter advises some EA activity kept the six metre band going after the closure of the TEP. His first EA opening occurred on 4-12 when at 0603Z VK6WH beacon was 579, and TV audio from VK3 and ZL was very strong, and worked into VK1, 2, 3 and 5 from 0800 to 1200Z. 42 stations were worked but no ZLs. 5-12 TV audio 51 740 57 at 0406Z, worked VK3OT 5 x 9 both ways at 0430Z. 6-12 VK3OT and VK2LM, plus VK2 and 4 beacons. 7-12 Wagga TV audio, then VK6RTU beacon from Kalbarrie at 559 (thanks for that bit, I was beginning to wonder if it was still operational so long since it was heard here . . . 6LP). 12-12 TV audio only from Tamworth, VK2WI 529, etc. 13-12 0548 to 0750Z worked four VK4s in Townsville. VK6VF beacon 519 at 0515Z. 14-12 VK6SV 16-12 VK4s in Townsville 0610Z. 20-12 0445Z TV audio from Wagga and Melbourne at 57. 22-12 VK6SV 579 23-12 0600 VK3OT, 0230Z VK3ATN, Melbourne and New Zealand TV audio! 30-12 worked 31 stations from VK2 16-1-80 0440Z VK3OT, 0627Z VK3ZOB. 14-1 worked four VK4s. 21-1 0825 to 1045Z many VK3s plus VK2ZF at 0830Z, being Andy's first VK7

I guess those who have been complaining about the poor EA season in the southern areas could not have had it much worse than Andy, if you care to note up his contacts and days of working. It seemed to me doubtful if Carnarvon is not too good for VK5 and I never heard Andy at any time, and it appears his only contact to VK5 was VK6SV on 14-12

Andy d'd make amends, however, when on 3-8-80 he worked YB8X, the JA DXpedition to Bell. He explains thus: "On sold date, I had been SE looking for signs of EA. When none was forthcoming I was about to turn the rig off, when I recalled a QSO with VK2BA on 6 metres a week or so before when David asked if I had heard anything of YB8X, the answer being negative

"I decided to swing the beam north on the off chance, really expecting to hear nothing but noise. A few minutes later at 0840Z I listened on 50 110 heard a station signing YB8X in QSO with JA whom I couldn't hear and YB8X was 5 x 8 at the time. I went (rushed) to 52 50, fired up the PA and started calling YB8X. Time 0645Z. He replied after my first call! He was 5 x 6 here and gave me 5 x 9. After our contact he went to CW on same frequency and called CQ for 45 minutes with no other replies being received! At 0937Z I called him on CW, sent 578, received 589 (it was running a bit, I forgot to take PA out of standby). After this contact he continued calling CQ until disappearing in the noise at 1000Z. The contact may have been EA but not sure."

Andy also mentions two metres has been interesting with frequent openings to the south. Areas worked to date include Perth, Northern, Albany, Busselton and Bunbury. Ray VK6QX, at Geraldton, has been bitten by the bug again and has SSB on six and two metres.

On the lighter side, Andy reports his XYL is enjoying the summer EA with DX giving extended listening periods of 11 at Geraldton, and lesser viewings from Ch. 9 Perth and Ch. 3 Bunbury

INTERVIEW: ANDREW FRANKS

Peter VK3AWY writes to advise the beacon project for six metres is progressing, a licence has been applied for and the frequency to be 32 330 MHz in accordance with the Band Plan. It is intended initially to run 25 watts output to a pair of stacked crossed dipoles. Ident will be once every 15 seconds at 5 w.p.m. Modulation FSK with 850 Hz tones. At this stage the letter (1-1-80) the antenna, keyer, power supplies and transmitter are either being constructed or modified. The call sign applied for is VK3RGG. A further report later. Thanks Peter

TOWNSVILLE BEACON

Some confusion seems to arise at times with reception of this beacon. I was asked by a number of stations during the EA period what the beacon was on 52 438 MHz (the frequency I was given) which was a spelling STIGENANU! To help identify the renegade, it is really VK4RTL, the Townsville beacon, with frequency still keying, being received backwards! To receive the ident correctly, tune your receiver a little higher in frequency where all will be well. This is one problem of FSK of course, if you are not aware of what is going on

THAT ICOM IC562

I received a note from Ray K5ZMS of SMIRK asking if I would be a custodian of an IC562 left in Australia by Jack WABAHAZ, who was injured whilst here in Australia and was unable to make use of it for a DXpedition. Jack has left the IC562 there in Australia for it to be used for DXpeditions or similar ventures by responsible amateurs. The offer is a very generous one and I am quite prepared to look after the equipment and make it available as required, providing it comes back to me each time after use.

Under this arrangement I am pleased to make it available to Steve VK3OT, who will be going to Christmas Island in the Indian Ocean from 12-3 to 26-3-80. Steve proposes using it in conjunction with a PA and hopes to have enough 6 metre contacts to put Christmas Island on the map. He is also planning to see what can be done about 2 metres to Indonesia, which is not a great distance away. I don't have a lot of information at this stage but I guess the most important thing is that Steve will be mounting the DXpedition between the dates mentioned and will certainly be looking for contacts back to Australia as well as the other areas. Being the early part of the equinox, lots of distance contacts may well be possible. Good luck Steve

THE NORTHERN HEMISPHERE ON SIX

Anyone would think it was summer time in the North rather than winter, there seems no abatement of the incredible six metre conditions. When one looks at the credits, a number of activity stations in USA, a few two-way contacts with EI2W in Ireland, it's a very long list! However, these contacts may end soon as I understand EI2WA permit to operate expires on 31-1-80

Bill VK3KO says TV signals from Europe have been so strong as to be a nuisance as high as 51 500 MHz which is a long way from their source in the 40 to 45 MHz area.

But contacts have not been confined to seawest, the north-south path to South America has been very active. Such gorgeous call signs as VY4ASU, FYTAS FYDHI, JA-P1G/PZ, T12NA HX1K, HPX2KP, HPX2KP, HX2KHC and HX2HA are being worked various times. USA activity daily openings to KL7 from Central and Eastern areas. Even so, there are some areas missing out. It appears the Washington area is short on JAs, looks like WARTHA will have to start sharing some of his 1000 JA contacts with the unlucky operators.

17-11 was a particularly good day when VE1ASJ worked ZL1AVZ and ZL1AUM, both making use of 50 105 under their new ZL privileges. 0842Z in Cyprus is hoping to get a spot frequency at 50 110 in addition to the one they already have at 50 059

H44PT is still elusive in VK5 and V48 also very rare. Others not so well reported as being worked are VK, India on 57EZA, HSWP, DUGF, V58P, K5CMH, etc. But the exotic call signs being worked from USA and Japan and contacts between K4EFP, VY1AU, HP1XDS, VY4AG1, HC1JX, K4WE, NP2AE, HZ2MK, T12H, DUTJ, VFW8V, VO2AG, X12IA, F08DR, Z8BLU, VO1JN, 5844Z, PY1RO, T2W4D, F0W1H, H4V4Z, C50KJ, F020W, LU2FA, VPM2M and plenty of others add to the list. KP4, VE, KL7, EI, YV, XE, etc., and you have some idea what is being worked

SIX METRES FROM ARGENTINA

Let me quote you some lines from SMIRK Newsletter No. 22 "I want to give you an idea what is really happening elsewhere and I have selected the report of Alfredo LU3EXJ, who is well known for his six metre operating over many years

WIA MEMBER INFORMATION

• AR ADDRESS LABEL CODES

January AR's note on page 39 was not too clear so here is a clarification by example —

"F 3 00 1 00 VK3YYY"

F — Membership grade.

3 — Division.

00 — Unused at present.

1 — Postal distribution code.

00 (when used) — Zone.

VK3YYY or L12345 — Call sign (space for only one) or SWL number.

Please advise corrections to Box 150, Toorak.

• PENSIONERS

Resolve pensions status with your Division please. Executive office cannot arrange re-gradings as this is a Divisional matter unless you change from Associate to Full member at subscription time.

• MEMBERSHIP CERTIFICATES

These are issued by Divisions not by Executive office.

• ADDRESS CHANGES, ETC.

Please notify all such changes promptly to Box 150, Toorak. When AR envelopes are returned to sender "left address", "not known", etc., a tag is inserted into your entry in the EDP file to suppress all future address labels until the tag is removed for reasons of a new address forth coming, etc. Missed ARs may not be available later to replace any not received.

• Please remember that the Executive office is the centralised processor of Divisional records for lists, subscriptions and the like.

• Please see advertisements for Mag-pubs supplies inserted in AR from time to time. WIA, PO Box 150, Toorak, Vic. 3142.

**REPORT ALL
INTRUDERS TO
THE INTRUDER
WATCH
CO-ORDINATOR
IN YOUR STATE**

"6-9 and 7-9-79 6Y8RC and FY7 beacons, W4, W5, same for 8-9 plus T12NA. 11-9 FY. 12-9 PY. 14-9 FM7AD 15-9 PY2 KP4 FY7 YVAGL and LU. 16-9 KP4 PY KH8 T12 FM7 and YV4 16-9 PY KP4. 17-9 LU PY YV4 FY7 6Y8 KP4 18-9 PY KH8 KP4 FY7 T12H. FM7AD FY7AS 20-9 KP4 RJSDW FY7 beacon YV4 KH8 K2SNW T12 and 6Y8 beacon HK on FM PY6ABA KH8IAA KH8NS 'E1GE. 22-9 PY XE1 FY W5 VY T12BZBL 23-9 PJSDW FY2AS K2S YV4 E1GE K2SNW KP2A KV4 PY1 YV4 T12 FY7A 24-9 FY7 and T12 beacons. 25-9 heard PY2XB/O on 26-9 FY2XB FM7AD KV4 KP2AE KP4 FM7AB. 27-9 PY2XB FM7AB K2SNW PY YV4 E1GE T12NA 28-9 KP4 T12 YV4 C2B BE QP4 K2SNW T12 HK on FM LUTFA 30-9 FM7AR KP4 PY2 T12 NP2AE PJSDW And this sort of contacting goes on right through October, and that's a station located in South Africa... just imagine how that list could be increased if you lived in KP4 or similar places"

I suppose we will now have to leave the DX on a x metres and hope for something worthwhile to happen in the Pacific regions in March and April. The November, December and January period hasn't produced much in the way of exotic call signs in Australia.

THE AUSTRALIAN SCENE

Probably the best that can be said from our vantage is that quite unexpected YEs produced a lot of openings throughout January 1980, making that month quite a bit better than December, which is unusual. From the VK5 area anyway, the 6 metre band was open 2-4, 4-1, 12, 13, 14, 15, 16, 17, 18, 19, 20, 24 and 26. Not a bad effort. Best days were 1-21 with VK2 3 4 5 and 7; 11-1 a big opening to VK3, 14-1 open for 6 hours to VK3 and 17-1 day 21-1 opening at 2242 to VKQD and continuing to be open at least 141 1100Z, nearly 13 hours. Areas worked were VK1, 2, 3, 4, 5 and 7, with a mass via opening to VK3. Many tried 2 metres, looking towards Brisbane, during the VK3 short skp opening but to no avail, the MUF wasn't quite high enough. On 12-1 ZL T2 was in at 59 for his last hour from 0300Z and Z-L4LY to VKQD and 5 x 6. On 13-1 H4APT worked VKAQD amongst others, plus VK2 and VK7. I was informed Same day VK2ZAY worked H4APT at 0444Z, and at 0632Z worked VK3DX (that's a long haul).

Working Kerry VK2BXT on 13-1 he informed me he will be going to Sydney late February after a stay at Moree of four years. Kerry also worked VK4RO on RTTY on 12-1 599 both ways 151 Ivan V4QO worked VK1RK and VK3AUR. On 17-1 worked Xellix VK2ZAY after absence of many years. VJ8PD worked VK2ZQY 0840Z on 16-1. On 18-1 worked Rod VK2BQJ first time this season, says he has 10 watts on 1296 now, 21-1 VK3AXV working ZL... The rest you probably know!

TWO METRES ACROSS THE BIGHT

I had to happen. There had been a number of small openings between Adelaide and Albany during January, at times with very strong signals. First noted on 20-1 when VK5XY and VK6KJ were worked 1100Z, the Albany beacon continued to be heard on and off over the next couple of days, then on 28-1 it happened. A good high pressure system across the southern area produced the right conditions which started as follows.

—As VK5ALW (SZVU) was working John VK5MGM on 160 metres (1) when John asked Les to check a trap vertical antenna, and to facilitate this they went on to the Ch 5 repeater and there was Aub VK5XY springing with VK5ZRD mobile. Les and Aub then went to 144.1 and had a contact, time 2306Z. After this contact Les worked Val VK6KZ/6 at Cape Leupen on the south-west tip of the Continent, then to lower contacts with VK6FM, VK6WD, VK6KJ, VK6NL, VK6ZEL, VK6ZG, VK6EO, VK6ZKO VK6ZGF, VK6RBE and tried valiantly to work VK6HK but to no avail. This was unfortunate for Dor as he was the one who alerted the stations in Perth. The last contact was made at 0332Z, which is about 6A summer time, an unusual time of the day for two contacts to say the least. Two other stations to work some of the VK6s were VK5QR and VK5RP. Being a working day, the usual 2 metre gang were at work.

The above contacts have been by about the first ever into Perth via tropospheric means, previous contacts having been via Es starting with

the contact to VK6BO in 1952. This time it seems the whole of the south-western area of VK6 was open, which is very unusual. The band was still open to a degree next morning, 24-1, when I worked VK6KJ, VK6KZ/6 and VK6ZFG, but conditions were fading rapidly and little was heard after 2300Z.

To say that Les VK5ALW was a lucky man would be an understatement surely. Full credit for working into Perth, but the chain of events leading up to the contacts is interesting. Les received his full call on Monday, 21-1. He went back to work on 24-1, the day after making the contacts, having then completed his leave. He normally keeps an ear on Ch 5 repeater, the one Aub VK5XY was working on! And what about poor old Bob VK5ZRO — he really started everything by working Aub whilst going to work in his car, using Ch. 5 repeater! He had to continue to work and leave the pickings for Les.

1296 MHz RECORD BROKEN

Apart from the 1296 MHz record separately mentioned, it appears Val VK6KZ/6 also worked Reg VK5OR on 1296 MHz, with Reg using AM, but no details of this contact are available. And whilst on the subject of 1296 MHz believe Ray VK3RN managed a few points from working into Melbourne during the Ross Hull day, value, 120 points for the first contact per day, anyway!

THE 78 cm BAND

This band may seem to be neglected at times, but this is not really so. I have had no reports of what Val VK6KZ/6 did on that band, but it would not surprise me if he didn't work into Melbourne on 23-1. Certainly, Ray VK3ATN has been using the band; I note he worked VK3ZDJ, a distance of 448 km, on at least two occasions with good signal reports. VK3ZDJ runs 10 watts, I also worked Ray on 15-1, 16-1 and 17-1 on 432 with best signals to 37 on 16-1. However, my attempt to work VK6KJ on 20-1 failed, the 144 MHz signals were only 5 x 4, so it's probably no wonder! My 60 dB attenuator (Nill) reduces signals somewhat to the west! Ray VK3AOS will shortly be operating on 432 and seems likely to work with receive no problem in the future when Ch. 5A starts operating in western Victoria.

MAINLY ON TWO METRES

Bill VK4ZWH reported on 11-1 that signals were 5 x 9 into Brisbane at 0640Z, distance about 50 km, and worked VK3BXT at 5 x 6 on Ch 59 FM, distance about 550 km. Bill reports that when the Mt Morwell beacon is weak at Bundaberg, good conditions prevail to Springsure and Rubyvale, but when the beacon is 59 contacts to those places are poor. Generally conditions are better inland than on the coast too. Good 2 metre conditions generally prevailed on 14-1 between VK5 and VK6, with a big opening to Melbourne and plenty of contacts. The good conditions continued next day, starting with good coverage by the mid-northern repeater Ch. 2 to Peterborough, Whyalla, Cowell, etc. Later in the evening the band opened to Melbourne again with both VK3ZBJ and VK3YH being worked here after 1300Z.

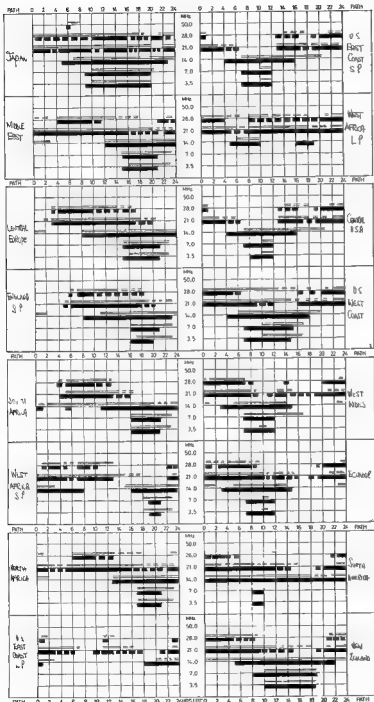
Finally, I note Daniel VKQDA has a 8 foot dish on 1296 MHz up 45 feet, so he must mean business!

WORLD RECORD ON THE 144 MHz BAND

On 23-1-80 at 1204Z a two-way contact on 1296 MHz was made between VK5MCM at Hatherleigh near Millicent and VK6KZ/6 at Cape Leupen. VK5MCM received 819, VK6KZ/6 4 x 2 on 558 with 4 watts. Distance approximately 2280 km or 1403 miles. This is a new world record, and extends the former world record held by the same operators established on 29-12-78 over a distance of 2107 km or 1309 miles. Chris VK5MCM received reports were not as good as on the previous occasion, and no VK6 beacons were audible on any band. Chris first heard Walter VK6KZ/6 at 1004Z, then again at 1100Z, and contact finally made at 1204Z. Congratulations to you both for another outstanding effort. . . VK5LP

IONOSPHERIC PREDICTIONS

Len Poynter VK3ZGP/NAC



LEGEND

FROM WESTERN AUSTRALIA

FROM EASTERN AUSTRALIA

BETTER THAN 50% OF THE MONTH, BUT NOT EXCEEDED

LESS THAN 50% OF THE MONTH

PREDICTIONS COURTESY: JPS, SIOUX

ALL TIMES UNIVERSAL UTC (GMT)

QSP

CURRENCY FOR RETURN QSL

Most amateurs will be aware that currency (notes) may not be exported by individuals except under written approval from the Reserve Bank. A further problem arises if this is ignored in many countries the import of currency is strictly controlled. Thus, if a currency note is enclosed with a QSL, the recipient could face severe penalties even if he did not solicit it. Much more tactful to use IRCs instead.

EVER BEEN HAD?

This is Alpha Paper Figure one Romeo India Lima. QSL via Foxlotr Figure zero Oscar Lima.

USA LICENCE PERIODS

The FCC is slated to be issuing all amateur licenses for a new five year term—Worldwide 9 November 1979.

PHILATELISTS

The Swiss PTT issued a series of special stamps on 8th September last to honour USKA on the 50th anniversary of the Union of Swiss Radio Amateurs.—Worldradio November 1979.

STAMP FANS

Like many amateurs do you have other hobbies besides radio? Jack K28HZ is now a keen stamp collector, particularly Australian and Pacific stamps. He would be interested in exchanging stamps with other amateurs and can be contacted at 8 Linden Court, Glen Park, New York USA, 12065.

CONTESTS

Wayly Watkins VK2DEW
Box 1065, Orange 2800

March:

8/9 COMMONWEALTH CW CONTEST
8/10 EUROPE/AFR CA RTTY CONTEST
22/23 BARTO RTTY CONTEST
29/30 CQ WW WPX SSB CONTEST

April:

8/8 POLISH 'SP' CW CONTEST
8/9 DX YL TO W/VE YL PHONE CONTEST
15/16 DX YL TO W/VE YL CW CONTEST
19/20 POLISH 'SP' SSB CONTEST
26/27 HELVETIA 'H-26' CONTEST

May:

24/25 CQ WW WPX CW CONTEST

CQ WW WPX CONTEST

Starts 0000 GMT Saturday ends 2400 GMT Sunday
SSB—March 29-30, CW—May 24-25.

Complete rules are published in January 'CQ' and are the same as in previous years. Briefly the rules are as follows: Contacts between stations on different continents count 3 points on 14, 21 and 28 MHz; 2 points on 7, 3.5 and 1.8 MHz. Contacts between stations on the same continent but not the same country 1 point on 14, 21 and 28 MHz and 2 points on 7, 3.5 and 1.8 MHz. Contacts are permitted between stations in the same country for the purpose of obtaining a prefix multiplier but have no QSO point value.

The multiplier is determined by the number of different prefixes worked. Each prefix may be counted once only not once per band. The exchange is RS(T) report plus a progressive contact number starting with 001.

Only 30 hours out of the 48 hour contest period may be used for scoring. The 18 hours of non-operating time may be taken in up to 5 periods for single operator stations who must show 12 hours of operating time to be eligible for an award.

There is no time limit for multi-operator stations, who must show a minimum of 24 hours of operating time.

Mailing deadlines is May 10 for SSB and July 10 for CW. Send entries to CQ WPX Contest, 76 N. Broadway Hicksville NY 11901, USA, and indicate whether SSB or CW on the envelope.

RESULTS OF 1979 AUSTRALIAN NOVICE CONTEST

Section A:

VK4JUL/8	601	VK2ATZ-C	143
VK2BHV-C	433	VK5NTV	124

VK2ADA-C	389	VK3VFH	82
VK2NLY	352	VK5MLC	86
VK2NBS	200	VK2BOS	58
VK2NGZ	199	VK7MFR	59
VK2HMA	180	VK3MFR	25
VK2PWC	151	VK4NHK	25
VK2VPV	148		

Section B
VK3XB 83 VK3MIL 86

Section C
No entries

From comments received it would appear that the time of year for this contest is not the best, both from the point of preparation (lack of it) and pre-Christmas activities. It is difficult to pick a free weekend for contests as there are many throughout the world, but a more suitable time will be sought for the 1980 contest.

CONTEST CHAMPION TROPHY
The following are the points to date for 1979 with the 1979 VK/ZL points yet to be allocated.
20 points - 3X8, 5QX
18 points - 2EL, 3AEW, 5OR
16 points - 3AUQ
11 points - 1RP, 3VF
10 points - 1PO, 1GB, 2CX, 2DGS, 2HZ, 2JM, 3WP, 5YLD, 3AVJ, 4LV, 4UX, 4DD, 5UM, 6RS, 6NBU, 1RO, 7RO, 7KJ, 7BD, 8HA, 8LD, 8XW 0JM.

The amateur with a "VK" call sign and the highest allocated points will be awarded the trophy but he/she must have entered at least three of the non-rated contests and also be a member of the VK-est Institute of Australia.

Nominate contests for 1980 are John Moyle Field Day, VK/ZL Oceania, Remembrance Day and Australia Jan-Cat Contests.

AWARDS COLUMN

Bill Verrall VK5WV
7 Lilac Ave., Flinders Park, S.A. 5025

Here is a summary of WIA Awards issued during the period 1st July 1979, to 31st December 1979, and the top DXCC scores new members and amendments as at 31st December, 1979.

WAVKCA AWARD	
Cert. No. Call Sign	Cert. No. Call Sign
781 *ATAMA	785 5BAAP
782 *ATMZZ	787 W87BFK
783 *H0HWV	785 G3HTA
784 JA1GLT	789 VE2APU
786 J1NCOY	

This is the WIA Award which is only available to overseas amateurs. The award blanks became exhausted last year and I have now received stocks of a reprint from Federal Office. Those of you who have seen this award would agree that it is a very attractive multi-coloured document which would command a prestige position on the wall of any amateur shack. I congratulate the Federal Office and the printer on the high standard of the reprint but the cost was quite high. If any member wishes to know the cost, ask your Federal Council or This may discourage some of us from complaining sometimes about our WIA members' fees and would explain "where the money goes".

By the time you read this, the approximate 40 award applications which were held up pending receipt of the reprint will have been issued.

WAS (VHF) AWARD	
Cert. No. Call Sign	
129 VK5ZGZ plus 4 additional countries	
130 VK4ZEX plus 8 additional countries	
131 VK2BAE plus 2 additional countries	

VHFCG AWARD	
Cert. No. Call Sign	
101 VK7MC	
102 VK4ZEX	

HAWKCA AWARD	
Cert. No. Call Sign	
44 L31111, M. A. Martin	
45 UA2-125-183	
DXCC — TOP LISTINGS	
PHONE	
VK6RU 318/382	VK6RU 293/303
VK5MS 318/359	VK4RF 292/301
VK4KS 316/347	VK4PX 291/306
VK6MK 311/347	VK4JF 289/300
VK5AB 308/338	VK4AK 282/292
VK4FJ 303/339	VK5WV 281/292
VK6LK 298/310	VK6WV 278/292
VK5AHQ 294/336	VK6HS 274/277
VK2APK 293/313	VK3AKK 274/275
VK4UC 293/306	VK3ACD 269/283

VK2EO 309/346	VK6RK 258/270
VK2QL 302/340	VK3YD 250/281
VK3YL 302/333	VK3RJ 246/272
VK3AHQ 296/331	VK3TL 241/260
VK4FJ 298/340	VK3KS 235/254
VK2APK 283/304	VK3JP 212/226
VK3ED 273/300	VK7LZ 206/236
VK4RF 271/291	VK4DO 204/223
VK3NC 261/297	VK6WV 202/231
VK6RU 258/297	VK4SD 186/206

OPEN	
VK6RU 318/382	VK6RK 296/317
VK4KS 316/351	VK4UC 286/310
VK6MK 311/347	VK3AHQ 284/328
VK3YL 312/343	VK7LZ 284/325
VK4FJ 308/352	VK2AG 283/311
VK4SD 308/339	VK4SK 282/291
VK2VN 302/336	VK6WV 278/292
VK2APK 301/329	VK6HS 274/277
VK4RF 301/324	VK3TL 272/293
VK3JF 299/318	VK3ACD 269/283

NEW MEMBERS	
PHONE	Tally
Cert. No. Call Sign	
181 VK5LA	114/115
182 VK5FS	188/199
183 VK6MEX	140/141
184 VK5DU	162/163
185 VK3AHQ	108/111
186 VK2BVO	112/113
187 VK2HVV	108/108
188 VK6BNU	100/101
189 VK6NQ3	103/103
190 VK2BAX	104/105
191 VK4ABM	111
192 VK4AMB	124
193 VK2FD	119/120
194 VK8YL	158
195 VK2BAE	95/102
196 VK5JAC	137/138
197 VK3RF	159/163
198 VK5XN	100/101
199 VK6NDH	103/104
200 VK7GD	103/104
201 VK3BRM	111/112
202 VK2BAX	202/203
203 VK7BG	237/239
204 VK2NHR	108/110

CW	
105 VK3ABH	128/131
OPEN	
171 VK2AAC	134/137
172 VK3NLS	126/127
173 VK2AAB	97/104
174 VK5RD	137/138
175 VK4LG	112/113
176 VK3ABH	234/240
177 VK2NKG	103/104

DXCC COUNTRIES CONFIRMED ON RTTY
VK5RY, Tally 82, VK5WV, Tally 33.

PHONE	
VK2YO 134/137	VK3AC 138/145
VK2AAC 134/137	VK3ST 138/145
VK2AHN 138/145	VK3SM 237/243
VK3DS 138/145	VK3ALM 237/243
VK3ST 138/145	VK3NAC 137/138
VK3SM 237/243	VK3JNDY 171/172
VK3ALM 237/243	VK4DO 258/278
VK3NAC 137/138	VK7LZ 258/261
VK3JNDY 171/172	
VK4DO 258/278	
VK7LZ 258/261	

Phew! Good hunting.

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SMIRK LIST — UPDATE	
JAPAN	
JE1CZY 3489	JE3RRS 3449
JE1DYH 3489	JF3BI 3499
JE1LJG 3489	JG3GK 3499
JK1KIB 3481	JG3GK 3472
JK1PEU 3452	JR3GP 3497
JK1CBX 3463	JR7BKL 3473
JK1PPD 3437	JA8HKM 3423
JK1PHB 3482	JA8SS 3431
JR1DLK 3418	JA9UE 3401
JR1EVS 3439	JA9UBX 3403
JR1OCY 3471	JARUJ 3402
JR2FUJ 3465	JA8SS 3485
JF2MBF 3490	
AUSTRALIA	
VK5ZGZ 3482	VK7MC 3477
OTHER	
DUIGF 3484	P292FB 3454
VK8QG 3486	EL2W 3484

To join SMIRK, the Six Metre International Radio Klub, send details of three foreign to foreign contacts with SMIRK members, together with J84, to the Secretary, Ray C. K5ZMS, at 7158 Stone Pines Drive, San Antonio, Texas, 78227. You will receive your number and certificate by return airmail.

SMIRK also produces a newsletter which is sent to all SMIRK members who keep a supply of self-addressed envelopes with the Secretary for Australia \$1 per envelope will cover airmail postage. The newsletter will help keep you in touch with what is going on around the world on six metres. List compiled by Lions, VK3NM

Readers may recall the "Gemfields Centenary Award", details of which appeared in April 1979 Amateur Radio, page 40. As a sequel to this award, the Gemfield Radio Group will hold a draw on March 1, 1980. The prize will be a valuable sapphire donated and cut by group members. The numbers for the draw will be taken from the Gemfields Centenary Call list. The winner will be notified by post and the results published in AR.



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Matching power supply (PSU 5) and antenna tuner (ST 3) provide the necessary additional units for a complete base station.

Frequency Range

160 Meter Band	1.8 - 2.4 MHz*
80 Meter Band	3.0 - 4.5 MHz
40 Meter Band	6.0 - 8.3 MHz
20 Meter Band	13.8 - 16.0 MHz
15 Meter Band	20.8 - 23.0 MHz
10 Meter Band	28.0 - 30.0 MHz**
*Model 151 only	
**Model 150 only	

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ASTRO 150/151

Mode:	CW, CWN, LSB, USB
Carrier Suppression:	Better than 50 dB
Side Band Suppression:	Better than 60 dB
Microphone:	47 K ohms with push button tuning
AF Response:	300 to 3000 Hz

INTRODUCTORY OFFER \$825

Performance Specifications

Spurious Radiation:	Harmonics > 45dB below peak power
Receiver Sensitivity:	Other > 55dB below peak power 10 dB S+N or better at 35µV
Image Ratio:	Better than 60 dB
Frequency Stability:	10 Hz/Hr after warm-up
Receiver Selectivity:	SSB & CW 2.7 KHz, 8 pole filter, Shape Factor 1.6:1 CWN 300Hz (X1a)
Audio Output Power:	Greater than 3 watts into 4 ohms
Power Requirements:	13.8 VDC, 1.8A peak Xmit.

ASTRO 102BX Performance Specifications



INTRODUCTORY OFFER \$1050

THE OLD BIRD WITH NEW "FEATHERS"

General:	160M Band	1.8-2.0 MHz
Frequency Range*	80M Band	3.5-4.0 MHz
	40M Band	7.0-7.5 MHz
	20M Band	14.0-14.5 MHz
	15M Band	21.0-21.5 MHz
	10M Band	28.0-29.999 MHz

*approx. 50 to 100 KHz overrange on each band	
Readout:	Six digit LED from internal counter
Frequency Stability:	Within 100Hz during any 30 minute period after warm up
Power Requirements:	13.6VDC (11 to 15VDC range) at 1.8 amp receive, 1.9 amp peak transmit

Transmitter:	235 Watts all modes, all bands
RF Input Power:	100 Watts all bands — limited by ALC to 100 Watt output PEP or CW
RF Output Power:	Full power up to VSWR = 1.7:1
VSWR Shutdown:	Approximate limit ratio as follows
	VSWR Percent Power

NO WITH NEW THERS™	1.5	100%
	2.0	80%
	3.0	60%
	∞	25%
Carrier Suppression:	Better than 50dB	
Sideband Suppression:	Better than 60dB	
Spurious Radiation:	Harmonics > 45dB below peak power	
	Other > 55dB below peak power	

Receiver Sensitivity:	10dB S+N Typ at 35 µV
Image Rejection:	Better than 60 dB
Receiver Selectivity:	SSB and CW 2.7 KHz bandwidth, two 8 pole crystal filters with shape factor 1.4

Bandpass Tuning:	6dB to 100dB
	CWN 300 Hz bandwidth IF crystal filter in series with one 8-pole SSB filter
	SSB and CW eight pole cut off contourously variable highpass or lowpass. LED readout shows approximate audio bandpass
	CWN IF crystal filter continuously tunable over 300-3000Hz with passband control
Dynamic Range:	AGC greater than 100dB
Audio Output Power:	Third order intercept +15 dBm
	Greater than 3Watts into 4 ohms

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YOU and DX

Mike Bazley VK6HD

8 James Road Kalamunda W.A. 6076

What is a QSO? The reason for raising this question again is that both CQ and the ARRL are considering dropping the RS or RST exchange requirements from their contests. They argue that in an international contest, the "Big Guns" only give out 59 or 599 reports regardless of signal strength or clarity if reports are to be dropped what is the position of a net QSO where the M/C puts across the call sign? Does he say "These are the stations checking in so please put them in your log?" Alternatively we can get an exchange that goes "I confirm your good morning. It is good evening here!!!" How about the skeds made with a DX station for a QSO on another band? Here the station knows the call sign, does he only have to think he hears you to put the QSO in the log? A report used to mean something without it how does one have a two-way contact or net QSO?

DX RUMOURS, FACT AND FICTION

KIMM, who was recently in the Indian Ocean signing PROGRAM, will be in SG Bangladesh, around the 1st March and will be hoping to be active, possibly from 3287F's (Peters OTH 3287F is very active most days on 2145 kHz from 0100Z. If conditions are not good to the USA, on 15 metres, Peter often QSYs up on to 29585 kHz, plus or minus QRM.

Those chasing an HZ1AB QSO, might try ZL3FM as a route. It is reported via VK3YL, that at present ZL3FM is out of QSLs but will reply to all cards as soon as new supplies are received.

Those who worked VPKVS recently may be interested to know that Klaus DL1KS was using battery power, into an FT7 driving a small transistorized linear (50 watt). The antenna on 10-20 was a T430XX at 30 feet fixed or Europe 80 and 40 was covered by inverted vees. Even so over 3500 QSOs were made on the five bands, including one to VK Klaus may be returning to VPI in May/June 1980. All QSLs via his home QTH.

In a recent QSO with VE3FTJ, George told his writer that he expected to be QRV from Burma in the very near future. Possibly this one will have already taken place by the time this appears in print.

Chatham Island ZL3UW/C is often found on 14220 or 14265 kHz at around 0600 to 0800 GMT.

Torge A355M is active but you need sharp ears for this one. He runs 5 watts of CW usually on 14202 at 0800 GMT QSL via Box 111 Nuku'alofa. (Last two items from DX notes in November 'Break In by ZL2ME).

An interesting delight to my comments in the January AR regarding Heard Island brought forth the following letter from a reader:

The Cape Pillar is only 2160 tons, and has very limited excess accommodation. The chances of any extra personnel to operate on Heard's and getting a berth are pretty remote, all spare accommodation will be taken by those in the working party.

The Radio Officer, ham or not, will not be allowed ashore as Heard Island is an unprotected anchorage, and the ship will be on permanent standby there ready to up anchor and head out to sea if the weather deteriorates. There will be no one required to stay on board and be available for any communication requirements. He will not be able to operate from the ship of course as antenna space is at a premium and the OC mare on the ship makes operating modern transceivers a bit of a problem unless they can operate from 24 volts DC which the R/O could obtain from his emergency battery (although using the ship's radio installation for amateur operator's signals).

So Heard Island may be on the air but personally I doubt it, and certainly the Radio Officer can be counted out.

That letter is certainly thought provoking. Even so the pundits are suggesting that there will be



This is a country! The recent JT expedition site at low tide (bottom) and high tide (top)



OT Jean F8EX, 75 years young. Jean runs a R4C and T4X with a 2 el. quad on HF and long wire for LF.

operation from Heard Island during March and it will be a well known W who will be the operator. May I suggest the best bet would be to check the usual DX frequencies, VKO operation or not, only time will tell.

Jacques W4LZZ is at present making several trips to 3VB-Iard on business. Chances are that he could be posted to Tunisia for a two year spell. If this eventuates it should take 3VB off many wanted lists, as Jacques is a very active amateur.

A note from 10DUD, passed via J1L VK6YL, provides the following information—

"I'm pleased to inform you that the station from Victorian City, HV3SJ, is active once again after many months of QRT. Myself—home call

10DUD—is the operator. I will be operating from Vatican City almost every Saturday and Sunday from 0600 to 0900 GMT and from 1430 to 1730 GMT, mainly SSB 14.21, 28 MHz. Sometimes a list is made by 10MFF QSL manager 10DUD."

Ever thought of going on a DXpedition? The recent Pelmyra, King Reef trip highlights what can go wrong. Operation was delayed one day due to engine trouble. On landing at Pelmyra their plane burst a tyre and crashed into trees. Jan Could WABUOW was injured and taken by US Coast Guard helicopter to Honolulu. I was reported she had two fractured legs and pelvis and ruptured spleen. If you would like to write a great well note, etc., to Jan I could be sent via WROHD.

VK6HD was told over the air that in spite of bad weather they'd make their landing on Kingman and even though one of the rigs had modulation problems they made 5500 QSOs from the Reef. QSL information in the QTH list.

An interesting letter from Peter VK3NHY asks for a section on Novice DX. Peter is so happy to do this providing others come to the party with information. Peter would be pleased to hear any QSL information on J1LFF/JD1. W04CVC/KH4 and T42FM. Of further note from Peter comes the information that WD4HQB has been posted to Bangui, Central African Republic, and hopes to operate from "15.8M QTH. He will be especially looking for Novices at weekends on 21,140 kHz. Finally a list of some of the CW goodies appearing in the 21 MHz Novice section CX4AO, HK0AZW, K0SJJ, K065/XH0, KV4BG, K04WM, HZ1AB, F00BE, WD4SCJ/SU, P2C2C, T42FM, YH1HFC, T41AB, EP282, BY4VT, BY4W. If that list doesn't make you brush up your CW then you are not a DXer.

VE3BVQ/ST2 very QRV SSB HF band as a DJUS/ST3 on CW 4U1JN QRV 14830 Thursdays from 2100 GMT. VE3MM very QRV 21 and 28 MHz SSB weekends 7pm BY2A has been very active lately on 14.21 and 28 CW. He is usually found between 025 and 030 QSL to his home QTH.

Well, that's the lot for the month. Thanks to BERS 195, VK3AQZ, VK3NHY, VK4KX, VK6AJ, VK6LK, Geoff Watts. New Sheet 73 as DX Mike VK6HD.

STOP PRESS!!

ET3PG has been reported as very active on 15 metres. Usual frequency around 21245 plus or minus. Has a few QSOs and when the pile up gets heavy QSYs up or down a few kHz QSL. PO Box 5327, Addis Ababa.

QTHs YOU MAY HAVE MISSED

AK4XK — via 18VCP
C3JKJ — via DUBT
C6ACY — via K4ZGB
DJ1U/ST3 — via DF2RG
EL2T — via K4BAI
FC0PHK — via DL1RK
FH0BM — via F6ESH
FATW0 — via W1LLE
W08B — via FK0SG
HY3SJ — via 10DUD
HZ1TA — via 18VCP
D4C8S/J5 — via D4C8S
JW6EM — via LA5X
KH3AA — Box 69 APO San Francisco, California 96305 USA

K6LP/KH5 — via K6LP
W4ZF/JKMSK — via W4ZF
W8NM/KH0 — via K4AVU
PJ9EE — via W4U7A
S2BT — via L4SMN
T24AOS — via DNEB
VE1A/I1 — via VE1C
VE3BVQ/ST2 — via VE3FPA
VK9DM — via K1B2
AA7A/VF2A — via AA7A
VP2MEG — via K4TVE
VP5DM — via W4ACZ
ZDRRL — via G4DRU
ZF0CL — via OX7PZ
ZK1DB — via W0WPF
JW60J — via W0SFI
SW1AB — via D4S2B
30KAR — via W4R4T
524YP — Box 62601 Nairobi
8Q7AL — via SM3CK5

Ron Henderson VK1RH

Federal WICEN Co-Ordinator,

53 Hannaford St, Page ACT 2614

Ph. (062) 54 2058 A.H.

EMERGENCY SERVICES COMMUNICATIONS PROCEDURE

This issue we continue with the fourth part of the Emergency Services Communications Procedure paper.

31. VERIFICATIONS

When verification of a message has been requested by the addressee the sending station will verify with the originator, and send the correct version.

EXAMPLE A

VK1BFX "VK1BFC - THIS IS VK1BFX - VERIFY message - TIME One Zero Zero Eight Zero One - A.L. BEFORE text - OVER"

VK1BFC "VK1BFX - WILCO - OUT"

VK1BFX, after checking with the originator, finds that the heading as previously transmitted is correct transmits

"VK1BFX - THIS IS VK1BFC - I VERIFY - MESSAGE - TIME One Zero Zero Eight Zero One - A.L. BEFORE text - PRIORITY - TIME One Zero Zero Eight Zero One - FROM - VK1BFC - TO - VK1BFX - INFO - VK1BFA - OVER".

VK1BFX "VK1BFX - ROGER - OUT".

EXAMPLE B

VK1BFX "VK1BFL - THIS IS VK1BFX - VERIFY message - TIME One Zero Zero Eight Four Five - word after - proceed - OVER"

VK1BFC, after checking with originator, finds that originator meant MOREE instead of BORRE so word 'proceed' transmits.

"VK1BFX - THIS IS VK1BFC - CORRECTION - message - TIME One Zero Zero Eight Four Five - WORD AFTER proceed - MOREE - OVER"

32. RELAYING MESSAGES

It may be necessary for a Signal Centre to re-transmit a message from another Signal Centre. This is the "THROUGH" message and the proword "IT" is included in the "FOR COMMISSION/CEN USE" line of the Message Form by the Signal Clerk of the originating Signal Centre

(b) Relaying of messages may also occur in a radio net, however without reference to the Signal Clerk, if conditions are difficult and the Sending Operator decides to relay the message via another station in this case the proword "RELAY" used alone indicates that the station called is to relay the message to all addressees

EXAMPLE

VK1BFX "VK1BFX - THIS IS VK1BFB - RELAY - PRIORITY - TIME - ZERO NINE One Five One Zero - FROM Bravo Foxtrot Bravo - To - VK1BFC - PROCEED on mission assigned - OVER"

VK1BFX "VK1BFX - ROGER - OUT"

VK1BFX "VK1BFC - THIS IS VK1BFX - PRIORITY - TIME Zero Nine One Five One Zero - FROM VK1BFB - TO - VK1BFC - proceed on mission assigned - OVER"

VK1BFC "VK1BFC - ROGER - OUT"

(c) The proword "RELAY TO" followed by an address designation indicates that the station called is to relay the message to the station indicated. When more than one station is called the call sign of the station designated to perform the relay will precede the proword "RELAY TO". At times it is necessary to relay a message originating on a radio-telephone circuit by some other means of communication. When such relay is necessary, it is the responsibility of the station relaying the message to place the message in the proper form for the means of communication employed.

EXAMPLE

VK1BFB "VK1BFX - VK1BRC - THIS IS

VK1BFB - MESSAGE - VK1BFC RELAY TO - VK1BFA TIME One Five Zero One Two Two - FROM - VK1BFB BREAK - etc. - OVER"

VK1BFX "VK1BFX - ROGER - OUT"

VK1BFC "VK1BFC ROGER OUT"

VK1BFC Transmits (relay to VK1BFA).

VK1BFA "THIS IS - VK1BFC - MESSAGE - TIME One Five Zero One Two Two - FROM VK1BFB TO VK1BFA INFO VK1BFX - BREAK - etc. - OVER"

VK1BFA: "VK1BFA - ROGER - OUT"

33. THROUGH ME

Because of changing conditions on a radio net cases may occur when a station to which a call is addressed is having difficulty hearing the calling station, but a third station can hear both stations well in this case the third station would invite the calling station to relay the call through him.

EXAMPLE.

VK1BFX cannot hear VK1BFC too well but VK1BFB can hear both stations loud and clear. After several calls VK1BFB says

"VK1BFC - THIS IS VK1BFB - THROUGH ME - OVER"

VK1BFC "VK1BFC - WILCO UR MESSAGE FOR VK1BFX - No further aid required - OVER"

VK1BFB "VK1BFB - ROGER - OUT TO YOU - VK1BFX this is VK1BFB UR MESSAGE from VK1BFC - No further aid required - OVER"

VK1BFX "VK1BFX - ROGER - OUT"

VK1BFB "VK1BFC - THIS IS VK1BFB - message passed - OVER"

VK1BFC "VK1BFC - ROGER - OUT"

Note: The use of this system depends, of course, on a high standard of net discipline.

34. BREAK-IN PROCEDURE

A station having a message of higher precedence than the transmission in progress may break-in and thus suspend that transmission in the following circumstances.

(a) Flash Break in at one.

(b) Priority: Only long Routine messages should be interrupted

(c) Routine: Break-in procedure may not be used.

EXAMPLE

VK1BFA is transmitting a long PRIORITY message to VK1BFC and VK1BFX receives a FLASH message for transmission to VK1BFB. When VK1BFA pauses, VK1BFX transmits:

"FLASH - FLASH - FLASH - VK1BFB - THIS IS VK1BFX - FLASH - OVER"

VK1BFA, hearing VK1BFX break-in, ceases his transmission.

VK1BFB "VK1BFX - THIS IS VK1BFB - SEND - OVER"

VK1BFX "VK1BFX - text, etc. - OVER"

VK1BFB "VK1BFB - ROGER - OUT"

(d) After VK1BFB has transmitted his acknowledgment of receipt, VK1BFA pauses for five seconds to permit any station with higher priority traffic to transmit, before resuming the transmission of his message.

(e) Immediately on being offered the FLASH message the operator at VK1BFB should warn his Signal Centre Superintendent, who in turn warns the Operations Room, that a FLASH message is coming in.

35. BROADCAST TRANSMISSIONS

(a) The "Broadcast" method of transmission is used to send a message in the event that, although he has not replied to the offer, there is a reasonable chance that the receiving station may be able to receive it.

(b) When using the Broadcast Method, the sending operator transmits the whole message at dictation speed and, at the end of the first transmission says, "I SAY AGAIN - I SAY AGAIN", and continues to transmit the whole message a second time, at dictation speed.

VK2 WICEN AND THE RED TERROR

During the afternoon of Monday, 17th December, three Emergency Fire Controllers were appointed under Section 41F of the NSW Bush Fires Act in the shape of three major bush fires burning in the district of Hershey, the Shire of Warragah and in the Ku-Ring Gai National Park. These fires were located on an arc roughly 22 km (13 miles) to the

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- ★ Fined wire beams
- ★ Case for UHF beacons
- ★ 80W linear for 8m
- ★ Wilson System Three review
- ★ Spectra DX exclusive
- ★ Backyarders - good or bad?
- ★ A.T.V. Special
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north of the centre of the City of Sydney

Numerous other fires of lesser magnitude were burning in other areas simultaneously, but one particular fire, some 100 km (50 miles) north-west of Sydney in the rugged mountainous country near Clarence, was considered to be a potential threat to settlements to the east and south if the prevailing winds continued.

An Emergency Fire Controller for the Clarence fire was appointed that same afternoon.

BUSH FIRE BRIGADE COMMUNICATIONS

All local Government Councils in the County of Cumberland which is the area surrounding Sydney and adjoining areas operate a VHF FM radio network on their own particular frequency for Bush Fire communications and all Bush Fire vehicles are suitably equipped.

Each Council has a Bush Fire Control Centre in a radio contact with their Brigades and has a sub-base on the NSW Bush Fire Council's emergency channel. The latter facility links all Fire Control Centres with the Bush Fire Council's operations room and the NSW Fire Brigade's operations room both in Sydney.

This channel provides "hot line" links for the Emergency Fire Controllers to the various authorities involved and fire-line links to the tankers arriving from distant areas to assist the threatened areas.

NSW WICEN ACTIVITIES

The Sydney North WICEN organisation, under Regional Co-ordinator Barry White VK2AAB, was activated at 1400 hours, December 17th. By 1500 hours, Sydney North WICEN had established 2 metre VHF (primary) and 10 metre HF (secondary) bases at the Hornsby Shire Fire Control Centre, which was the operations headquarters for two of the three Emergency Fire Controllers.

For the next 52 hours Sydney North WICEN provided continuous fire-line communications with WICEN mobile units attached to the tankers and crews of Bush Fire Brigades from distant areas which were not fitted with the Bush Fire Council's emergency channel.

Mobile caissons proceeding into the fire areas to feed the bush fire crews were accompanied by a WICEN vehicle which ensured that all crews were fed despite the limited visibility resulting from the heavy smoke and the continuous movement of the Brigades.

A WICEN 2 metre base was established at Warrington Fire Control Centre during the afternoon of the 17th with a direct link to the Hornsby WICEN base.

There was no requirement for a WICEN mobile force at Warrington but there was a pressing need for operators on the Bush Fire Council's emergency channel which could not be met by the staff of the Warrington Bush Fire Control Centre to their complete commitment to their own channel.

By late afternoon of the 17th WICEN was operating on the emergency channel and did so continuously for the next 48 hours.

Simultaneously with the above, and located well away from the Fire Control Centres, a WICEN Roster Officer and assistants came on duty to handle the offers of assistance from WICEN members, to roster personnel on and off duty and to record such details and to handle the myriad of tasks that need attention during emergency situations.

The roster crew had their own 2 metre calling channels and telephones and their location became the rendezvous point for WICEN personnel thereby relieving the operations channels of all administrative matters.

Additionally, throughout Tuesday 18th WICEN supplied a competent operator for the Bush Fire Council's emergency channel base station in Sydney.

By 1800 hours on Wednesday 19th December, the three major fires were under control, the emergency declarations were revoked and WICEN was stood down to a standby alert status.

On Saturday 22nd December the Clarence fire, to the north-west of Sydney, under the influence of strong north westerly winds, jumped the control net. By Sunday the 23rd it was moving south

and east on a broad front, threatening many small settlements and creating a potentially serious threat to the comparatively populated line of towns dotting the Blue Mountains area, some 60 to 80 km west of Sydney.

Sydney North WICEN was again activated on the Sunday afternoon and rapidly established VHF and HF bases at the Baulkham Hills Shire Fire Control Centre with links to two WICEN communications vehicles at the village of Balpin, some 50 km (30 miles) distant, which was on the most easterly edge of the fire.

The WICEN vehicles became the communications centre for the Bush Fire Brigades from the Sydney area which had been despatched to assist the Blue Mountains and Colo Shire Bush Fire Brigades.

These assisting Brigades could communicate with each other but due to terrain and distance could not maintain reliable communications with their parent base stations.

WICEN could, and did, provide the links continuously which resulted in the relief crews, spare parts, etc., arriving at the fire ground as necessary to maintain the operational efficiency of the fire fighting force.

About 2100 hours on the 23rd the Emergency Fire Controller for this fire urgently requested a Radio Teletype (RTTY) link from his headquarters at Katoomba to the Colo Shire Council Fire Control Centre, about 50 km (30 miles) east.

Bearing in mind that it was 9 p.m. on a Sunday night at the start of the major holiday season of the year, this was not an easy request to meet.

The request was put to the Sydney RTTY group who, by midnight, had transported two operators and RTTY gear some 50 km (30 miles) and had established RTTY and VHF mobile links from the Colo Fire Control Centre to the Katoomba Centre.

Whilst this action was in progress the Blue Mountains Regional WICEN Co-ordinator, Stuart Brown VK2RY, was activated and had proceeded to Katoomba to establish that RTTY terminal.

The RTTY facility was provided with the minimum delay possible and at great personal inconvenience to all participants, and though it was utilized, it was not used to its full capacity.

The arrival of south-easterly winds and cooler conditions during the late afternoon of Christmas Eve stabilised the fire situation and permitted a stand down of WICEN by 1800 hours.

However, that was not the end of WICEN's activities. During Christmas Eve afternoon an Emergency Fire Controller was appointed in respect of a fire in very rugged terrain some 40 km (24 miles) north-west of Gosford. Gosford is a major centre some 50 km (30 miles) due north of Sydney City.

The Central Coast WICEN group, under Regional Co-ordinator Ray Wells VK2BVO, was put on an immediate alert.

The Emergency Controller deferred full scale containment action until 0600 hours on 27th December, when WICEN went into the field providing VHF and HF communications links from the Brigades to the Gosford Fire Control Centre and liaison communications with the Australian Army units engaged on the fire line.

The terrain was such that only four-wheel-drive vehicles could safely negotiate the tracks around the fire and it was taking an hour or more in some places to travel 10 km (6 miles). Central Coast WICEN was the field communication centre from 0500 hours on the 27th until 2200 hours on the 28th when the fire was declared safe and WICEN reverted to a standby status.

Steady rosters of WICEN personnel were maintained throughout the New Year holiday period and until appreciable rains early in January considerably eased the bush fire situation.

From records maintained throughout the period 17th to 28th December inclusive, some eighty-six (86) WICEN personnel were activated—either on duty or on standby during the Sydney, Clarence and Gosford fires. This does not include the non-emergency personnel who provided assistance in the transport and catering fields. Without those services the operations would have been more arduous.

It is estimated that WICEN personnel spent over 1750 man-hours in the fire, but it is almost impossible to estimate the man-hours spent on stand-by by relief crews except that they must run into several thousand hours.

WICEN responded to the emergency situations rapidly and efficiently without materially depleting the organisation's reserves of manpower and equipment.

FIRE DAMAGE

It is provisionally estimated that the Hornsby, Warrington and Ku-ring-Gai fires burned 15,000 hectares (37,000 acres) of predominantly urban land. Fourteen houses were gutted and an undetermined, as yet, number were damaged.

The Clarence fire is estimated to have burned some 118,500 hectares (288,000 acres) of mainly rural country as it travelled about 50 km (30 miles). One weekender holiday house was destroyed and several sheds or outbuildings.

North-west of Gosford the fire consumed 22,000 hectares (54,000 acres) of rugged isolated terrain. No houses or sheds were lost.

Remarkably, no lives were lost at any of the fires, which is a tribute to the efficiency of the Bush Fire Brigades and other fire authorities on the fire fronts. Several volunteer Brigade members were injured—some seriously.

SCALE OF OPERATIONS

Practically every volunteer Bush Fire Brigade in the County of Cumberland and adjacent areas was engaged on one or other of the fires—well over 100 Brigades with a strength in excess of 1000 men, plus every tanker and crew that could be supplied by the NSW Fire Brigade, plus large contingents of the NSW Police Force manning road blocks as well as being on fire lines.

Several hundred Australian Army Navy and Air Force personnel were moved together with military and civilian heavy earthmoving vehicles. Military and civilian helicopters and light aircraft were used extensively for observation duties.

The Salvation Army and the Seventh Day Adventist organisations provided control assembly point and fire-line catering whilst the State Emergency Service handled welfare problems.

In total it was a massive community operation involving several thousand persons over an operational period of two days.

The contribution by the NSW WICEN organisation has been appreciated and acknowledged by the Statutory Authorities concerned and the amateur fraternity as a whole can be justifiably pleased with, and proud of, their efforts.

"VERUM SATIS SAPIENTI" (Placid Latin for "A word to the wise")

These facts have emphasised and confirmed the need for the persons amateur and non-amateur who defend and criticise the WICEN organisation.

They reiterate, ad nauseam, the theory that the continual build-up of communications facilities by the Statutory Authorities negates any requirement for amateurs to provide additional communications during a Civil Emergency.

When a particular emergency situation arises and adds by the rules regulations etc. that the Statutory Authorities must adhere to and presents only the problems that pre-arranging procedures have foreseen then and only then will the amateur communications systems cope with all the requirements. Until that day arrives there will always be a need for a viable WICEN organisation to assist with the perverse and too demands of a sustained emergency situation.

There is no glory or kudos in being a member of WICEN just the satisfaction of providing a specialised community service when no other organisation, be it voluntary or Statutory can provide.

Every WICEN group in the Commonwealth needs mature, responsible amateurs and, irrespective of location or grade of licence you, local WICEN Co-ordinator will be pleased to hear from you.

From Howard Freeman VK2NL NSW State WICEN Co-ordinator

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher

PO Box 90, Tronsgabb, NSW 2145.
7th December 1979

The Editor
Dear Sir

I know that it is bad practice to include more than one subject in a letter such as this, however I crave your indulgence since by so doing I will reduce the volume of correspondence and hopefully be a little more economical in the use of words

ITEM A

We often see references to the tendency for Australian radio amateurs to become "Appliance Operators"

It is unfortunate that this accusation has a fair measure of truth in it, but I would like to suggest that it is not entirely the fault of the amateur

From personal experience as one who enjoys attempting to build up a circle of interest, I suspect that the equipment rate, outlets must accept much of the blame. To read the advertisements in any radio journal one would gain the impression that 98 per cent of amateur activity is based on pre-built commercially available items. In fact, any attempt to obtain parts which do not fall into the realm of everyday usage is doomed to failure. I am sure the very best of us in any attempt to have the ready built investigation of stocks held by "second-hand" stores often produces results both the time and message expanded becomes disproportionate to the result.

Without expounding the facts in greater detail, I just wish to make the statement that the "Appliance Operator" is being created largely by the retailers for reasons which must be apparent to all. If there is a solution to this problem I wish someone the very best of luck in any attempt to have the message learned by those responsible for the present situation

ITEM B

In December AR VK3UG made a suggestion that the WIA Division be dissolved in favour of Club/Zone — Federal body type of organisation

I would like to express my disagreement with such a proposal, mainly because in a country the size of Australia it is impossible for a talented body probably based in a major centre of population to have a knowledge of the problems and activities associated with the more remote parts of the country. I mean remote in terms of distance from the controlling body — not just outlook! It would also be impractical in terms of time and expense for the number of delegates required to voluntarily represent remote areas to attend on a Federal body to deal with all the regional problems as well as national problems

Clubs have their use, but their problems, solutions and ideas are normally too fragmented to be of great use to a body dealing at a national level. There must be a filtering system to ensure that matters of national importance are properly represented to a national body, and that more localised matters are dealt with at a more local level

The difficulties which are apparent and which probably prompted the letter under reference, can be overcome by the standard of representation at a Divisional level. Whether or not an improvement is desired or necessary is a matter for each amateur to decide personally, and the solution is equally in the hands of the same amateurs and this without making major structural changes to an organisation which has demonstrated that it can in fact work.

ITEM C

In the same issue of AR VK2UO made some comments on the community usefulness of amateur radio.

Despite the editorial comment on "Hamagrams", which I believe was intended to be derogatory, I must support some of the ideas expounded

During one or other of my many communication industrial disputes, I became aware how some amateurs did in fact put their head on the block and provide some community assistance, largely in the area which could have well been described as "using hamagrams"

Because of the obvious benefit, I made a fairly detailed submission to the Minister of P. and T., setting out how the amateur could, with certain limitations regarding responsibility, take over the role of communications within the country of items which could not be handled by the telephone system, which required more rapid handling than through the mail system, and which by the admission of the Minister, were not desired by his Department. This must of course refer to "telegrams", a communication which has been stated as being a loss to P. and T. and a system which is being phased out as much as possible by discouragement of the user

My original proposal was followed up some time later in a second letter, however as you really surprised to know that I did not even receive the courtesy of an acknowledgement — not a lesson in good manners at all!

You will gather from these remarks that I do support the idea of community service, even if the word Hamagram is a little well, unusual

Yours faithfully,

J. M. Swan VK2BOS.

1 Lines St, Holder 2611, ACT
12th December, 1979

The Editor,
Dear Sir

With WARC 79 all over bar the shouting, it may be too late to change things. However, if we as amateurs have lost anything, we should consider the following report before we try to lay the blame. The following comments were made at the 1971 World Administrative Radio Conference for Space Communication, and was reported in "Amateur Band News and Notes" in the December 1971 Electronics Australia

"You fellows aren't amateurs any more. An amateur is supposed to be primarily an experimenter to build his own equipment, to try out new circuits, to develop new ideas. You did this years ago, but no longer. All you do is lay out a few hundred dollars on station equipment entirely commercially made. When something goes wrong, you even send it back to the manufacturer for repair. You aren't amateurs, you are just communicators. We can't afford frequencies for such activities."

It is not a case of "Amateur Bands — Use Them or Lose Them" as some would have us believe. We must be able to justify our existence as amateurs and experimenters, and not just as glorified CB operators. Just think next time you use your local repeater or have your next HF ragchew — has it made you, or the other person you are communicating with, an experimenter, rather than just a communicator

Yours sincerely

Kenneth Ray VK2KRR

The originator of the comments was not identified. The outcome of WARC 79 relating to the Amateur and the Amateur Satellite Services speak for themselves in relation of misinformation or misguidance so freely aired and believed prior to the event — E.D.

The Editor,
Dear Sir,

Thank you for publishing the article on Mrs. F. V. McKenzie in December AR.

This distinguished lady has had little publicity in her lifetime and her interests in radio cover such

a span as to exceed that of most living hams.

I will remember as a very young budding ham going to her shop in The Royal Arcade to buy parts and her very helpful manner

Your journal can do a lot to build up a sense of history in present and future hams by printing articles on "old-timers" and also old equipment, as you have been doing and I hope you will keep such material regulary before us readers.

Yours faithfully,

J. A. Mead VK2JM

LIVERPOOL AND DISTRICT
AMATEUR RADIO CLUB
c/o Anthol Tilley

5 Belmont St, Villawood, NSW 2163

December 3, 1979

The Editor
Dear Sir,

We would appreciate publication of the following letter in the Letters to the Editor section, preferably in the next possible issue of AR

On Sunday March 23, 1980 the Liverpool and Districts Amateur Radio Club is conducting a Field Day at Catherine Fields, 16 km west of Liverpool. It is worth noting this is the first Sydney Metropolitan area Field Day for some 10 years.

All areas of interest will be covered, for, as events include the usual 2 and 10 metre mobile fox hunts, pedestrian hams, trade displays and activities for wives and children

Full programme details should be included in EA, ETI and ARA, as well as the VK2 Mribulletin

Persons seeking assistance with accommodation bookings, information, or simply eager to obtain advance copies of the programme can contact Lloyd Anderson at 105 William Drive, Catterguth 2168, NSW

Yours faithfully,

Anthol Tilley VK2BAD, Treasurer LADARC

INTERNATIONAL NEWS

RECIPROCAL LICENSING

An effort will be made to include in this column the address of licensing authorities as likely to be of interest to VKs traveling abroad

The list this month begins with ZSland. Applications should go to "Telecommunications Dept Private Bag X74, Pretoria, Rep. of S Africa

Another is the Kiribati Republic. Controller of Telecommunications, Ministry of Communications and Works PO Box 497 Bello Tarawa Atoll, Gilbert Is., Kiribati Rep. Licences cost \$A10

Further news comes from the "Guest Licence Co-ordinators", Box 35481 Northc 9 2115, South Africa, that short term permits to operate amateur radio stations by visitors whilst in South Africa will now be considered. This apparently does not apply, as everywhere else, to novice licences. Also it was stated that Australian visitors can get permission to work from T4, H5, S8, 3D6, A22 and ZE.

During WARC 79 ARJ President Noel Eaton VE2CJ convened an informal meeting to discuss the future of the IARU Twenty two ranking amateurs from all the regions (including VK3QV and VK3ADW) attended

13 Salisbury Ave.,
Bexley 2207
11-12-79

Join a new Member
— NOW —

RADIO AMATEURS OLD TIMERS' CLUB

Bob Cunningham VK3ML

Founded only in 1975 this Club enjoys over 400 members residing in all States of VK plus a number of overseas members. As the membership certificate states the objects of the Club are to maintain the interests and good fellowship among older members & the common cause. The only qualification for membership is that an applicant must have held an Amateur licence for at least 25 years. At the present time there is a special sticker for attachment to the certificate indicating '50 years'. If that is applicable if any other Amateur is interested in joining the RAOTC send a SAE to Harry CHN VK3HC, QTHR, for an application form.

A monthly net hook-up is now being conducted under the baton of Fred VK3QL at 1000 hours EAST on the first Monday in each month on 7120 kHz. The next call will be on March 3.

The 1980 annual dinner and get-together will be held at the usual location, i.e. Clures Ross Science Centre, Melbourne, on Thursday March 6th, when some 100 members are expected to forgather. Our President Max HUL VK3ZS will welcome members and any visiting ham.

Congratulations are due to the VK6 Division, where the membership at this time of writing was 42. Lee Hutchers is the driving force in that area.

Since the last dinner the committee has come up with a larger membership badge for the RAOTC. It looks good and is well worth having. Those members who have not yet applied for an issue should apply to VK3HC enclosing money order or cheque for \$1.20 to cover the cost of the badge and postage.

COMING SOON!



From a heated toilet seat to telephone diallers from board based to computers from hi-fi to components - you'll find them in the 1980 Dick Smith Electronics Catalogue - 104 pages packed with over 3,000 items. Get yours FREE with the April issues of Electronics Today International and Electronics Australia available from your newsagent or from a Dick Smith store. If you have difficulty in obtaining your catalogue send for the catalogue direct from our Mail Order Centre price 75c.

Ask for one of our stores or by Mail Order:
DICK SMITH ELECTRONICS
Mail Order Centre, PO Box 121, NORTH RYDE
NSW 2113. Tel: 02 955 2200.



This is to certify that

(SPECIMEN ONLY)

has been elected a member of the

RADIO AMATEURS

Old Timers' Club

(Australia)

and is authorised to nominate other qualified amateurs for membership.

Membership is accorded to radio amateurs who have been qualified to hold an amateur licence for 25 years.

The objects of the Club are to maintain the interests and goodfellowship among older members in the common cause.

Date _____
Certificate No. _____
Secretary _____

MAGAZINE REVIEW

Roy Hartkopf VK3AOH

(Coding used: G—General, C—Constructional, N—Novice, P—Practical (no constructional information), T—Theoretical.

GST October 1979

Better Results with Indoor Antennas (PC); Microprocessor Based Morse Keyboard (T); Log Periodic V Array (TC).

HAM RADIO October 1979

50 MHz SSD Exciter (TC); Compact Loop Antenna 40 and 80 Metres (T); VLF Antenna Coupler (P); Grass Guide Coupler for 10 GHz (TC).

73 MAGAZINE October 1979

2 Metre Synthesiser (C).

INDIA AMATEUR RADIO February 1979

List of VU Call Signs (G).

BREAK 106 November 1978

Yagi Antennas (T); Old Timers' Club (G).

CQ November 1978

40-80 Metre VFO (C); Chatham Island DXposition (G); 100 Metre Vertical (C).

CQ December 1978

Two Band Vertical Monopole (C); Battery Saving Blinkers (C); W310A Multiband Antenna (GC); Horn Speakers (Historical).

INDIA RADIO April 1979

Wiring by Touch: A Blind Operator's Achievements (G).

GST November 1979

"J" Driven 2 Metre Beam Antenna (C); Morse Readout for Your Digital Dial (C).

73 MAGAZINE November 1979

Vertical Whip Design (TC); Long Yagis for UHF (G); Index 1963-1978.

DIVISIONAL NOTES

VK3

VKSBI BROADCASTERS

LINDSAY SMITH VK3GX

Lindsay was first licensed in December 1973 and received his full call in May 1975. He joined the team in September 1978.

Lindsay enjoys the fun value in doing the broadcasts each six weeks. He sees them as a small way to do something for the WIA apart from operating. It is a good way to meet the other people in amateur radio and to get an idea of how things run.

He feels that the broadcasts are to allow amateurs to tell other amateurs about what they are doing. It is a funnel for information rather than a collector of information. It is also a display for the public.

He dislikes the tendency for people to waffle. He also dislikes the tendency for people to take the broadcasts for granted. People, he feels, too often "pass the buck" and expect "someone else" to get the news in. It is easy to ring the stop press announcer with a news item.

Lindsay's other interests are 160 metres, Hi-Fi, studying medicine.



KEVIN WHITE VK3ZJ

Kevin joined the team of announcers about two years ago on the urging of Graham Clements. Kevin has had his full call for about 5½ years. He converted it to a two letter call in 1976.

**PLEASE SUPPORT
OUR ADVERTISERS**

Kevin thinks of the broadcasts as a service to the members of the WIA. He enjoys the task of making the broadcast have a professional presentation. It is also something to do on every third Sunday morning.

Kevin feels that the broadcasts are to communicate with other amateurs. Their purpose is to inform and entertain rather than bore people. Call backs allow amateurs to present their views on matters in the broadcast.

Kevin dislikes the people who knock the WIA without being prepared to have a go at running the show; people who sit on the fence and criticise rather than contribute.

Kevin's other interests are school teaching, study of a professional radio course, announcing production course, mid-1960s music.



AROUND THE TRADE

Vicom International Pty. Limited have announced the appointment of Mr. Laurie Wade as Branch Manager, New South Wales operations; responsible for all sales and marketing functions of professional and amateur products in Vicom's recently established NSW office.



Mr. Wade, a chartered electronics engineer, is well known in the Australian electronics industry, and a respected member of the amateur radio fraternity.

NEW TRAPPED VERTICAL ANTENNAS

Chimsdale Electronics have recently released their own brand vertical antenna Model CE-5B and Model CE-4B. The CE-4B is a trapped vertical antenna which operates on 80, 40, 20, 15, 10 and is approximately 30 ft. long, impedance is 50 ohms and an SWR of 1.5:1 or better can be expected on each of the bands. The power rating is 2 kW PEP.

The CE-4B is basically a 4 band version of the CE-5B, covering 40, 20, 15, 10m, omitting 80m for those who don't require it. Both antennas come

complete with easy to follow instructions and are well packed in a plain carton.

The CE-5B retails for \$99 and the CE-4B for \$85. For further information contact Chimsdale Electronics, 26 Edwards Road, Chimsdale Park, Lilydale 3186. Phone (03) 726 7353.

WORLD TIMES ALARM SOLAR WATCH

GFS Electronic imports have just announced the release of a Solar World Times Alarm Watch. The watch is known as the Model 1700S and allows its user to easily read the time anywhere in the world. The 1700S is also a 12 function 8 digit watch. These functions include Alarm, Day, Date, Seconds, Stop Watch, Dual Standard Time, etc.

Rendell is of the Liquid Crystal Type and the watch has a small battery installed which is automatically charged by light reaching its solar cell.

For information on the 1700S contact GFS Electronic Imports, 15 McKean Road, Mitcham 3132, Victoria, Australia. Ph. (03) 873 3938.



TRADE HAMADS

For a very long time commercial advertising has not been accepted in AR Hamads, but as the result of discussions at the 1976 Federal Convention a decision was made to open up a "Hamads-Trade" section. The rate will be \$18 for 4 lines plus \$2 per line (or part thereof), minimum charge \$10, prepayable. Copy is required by the first day of the month preceding publication. This will mean that in future ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.

HAMADS

- Eight lines free to all WIA members. \$9 per 3 lines for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Reprints may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means address is correct as set out in the WIA 1979 Call Book.

FOR SALE

2650 Microprocessor Morse Sending Programme, 5:30 w.p.m. with punctuation and abbreviations, easily interfaced to keyer. For listing, instructions and Kansas City 110 baud tape send \$10 to Watkins, Box 1117, Orange 2800.

T5829S MC50 Mic., \$750; AT 200 ATU, \$120; SM220 monitor and 820 pan adaptor and service manual for all items, \$230; BG221 frequency meter with 240V power supply, \$40. VK2 QTHR. Ph. (02) 570 2042.

Vasna FT7 Tactr, as new, \$400, OHNO; Vasna FL110 linear, unused, suit. \$700; FT301, \$180, OHNO; Universal HC75 antenna tuner, as new, \$50, OHNO. Vicom VCS SWR/RF power meter, as new, \$20. VIGNWX. Ph. (03) 467 1503.

Kenwood TS520 20, display, DC/DC power supply, installed with aux. band, 4 ft. flex, high gain FETS, mic. socket for headset mic. comb. and "Phantom" DC supply for preamp mics, add rear outlets for access 12V foot PPT recorder, factory mode, done, cables and workshop manual, with bulletins, cables access, factory cables, \$525; D104M preamp mic., \$20. VK2BXU. Ph. (02) 57 4648.

ICOM IC 211 2m Base-Mobile, as new, in orig. carton, \$550 (no offers); ICOM IC SM2 desk mic, new, \$40. VK2BYS, QTHR. Ph. (069) 47 1988.

Kenwood AS590 Ham Band Comm. Rx, provision for aux. band, four filters, VHF converter, 240V or 12V DC, with Kenwood matching speaker, can be used as remote VFO for TS520S, 820 series Tactr, brand new in box, \$400. John (02) 359 6455 BR, or Box 505, Bond Junction 2022, NSW.

Yasuo FL1008 Linear, new tubes fitted, \$250; Kenwood TR7200 FM Tactr with bracket and manuals fitted ch. 2, 3, 5, 8, 40, 50, \$175; TS205/TS205 DC-DC power unit, \$50. Mick Trickett VK3ASQ, Ph. (052) 78 1043 Bus., or PO Box 444, Geelong 3220.

AR 240 Service Manual, full circuit diagrams and board layouts, plus advice on fixing ping and receiver birdies, \$5 for copying and postage. Ray VK1ZJR, QTHR.

Sweep Generator, Yelonic SM200, with plug-in units and markers to 500 MHz, professional, c/w handbook, \$450; Rode and Swartz Bell strength meter, model "HUZ", covers 47 to 228 MHz, c/w handbook and leather carry case, \$150; Oskerblick SWR-200, SWR meter and in-line power meter, 3 MHz to 200 MHz, suit 50 or 75 ohm line, new, still in carton, retails for over \$75, will sell for \$50; Radio Corporation square wave generator, variable output level, impedance and symmetry, \$30. Ian Foster VK3ST. Ph. (051) 82 4027.

Memoband 10m Beam, wide spacing 2, 2, 14, 14 boom gamma matched, solid construction, mast support gusset strengthened, \$50. VK3BIT, QTHR.

Yasuo FT901 DM, \$1000, VK3AIF, QTHR. Ph. (03) 857 5401.

ICOM 202, as new, complete with 10 watt linear amp, has COR and metal case, \$220. VK3AGD, QTHR. Ph. (058) 21 3272.

EMI Fully Interlocked and xtal Controlled Monochrome Pattern Generator, has TV waveform monitor, RF/video picture monitor with reduced scan and half frame facilities, RF modulator and up-converter to TV 0-13 with 5.5 MHz FM sound carrier modulator, dual p/s with metering and crowbar protection, system also includes sweep gen. for B/C RF and IF, TV IF with provision for markers, all mounted in a double 19 in. rack cabinet with rear access doors as an operational/standby system originally a factory signal source, board extenders and circuits included, will not break up into individual units, \$250. Ring for more details. G. P. Hughes VK2ZNY, QTHR. Ph. (02) 80 3589.

Hustler Trap Vert. Ant., 4-BTV, never been erected, unusable present QTH, \$75; tactr, Yasuo FT227R, unused, \$310; also old receiver ARM 101 with power AC240, working OK, what offers? VK2IS, QTHR. Ph. (066) 52 3378.

Marconi FT601A Sig. Gen., 10-300 MHz, 6-100 dB attenuators, CW or mod. CW in working order, \$110, OHNO. VK3JUU, QTHR. Ph. (03) 674 9632.

Digital Panel Meter, volts and ohms, teletype distortion measuring set, type 50V5 metre aerial, ATN 5153-A, log periodic, 12 dB gain, and reasonable offers. VK3BOS, QTHR. Ph. (03) 57 7441.

Yasuo FT101 Tactr, good cond., complete with manual mic., power cords and original carton, can work you for demo, \$525; Kyoritsu VTVM model PV202, AC-DC, 0-1500 volts, 0-1000 megohms, 7 ranges, good cond., complete with manual, \$50; Grundig GDO, 1.7-250 MHz, 2 ranges, good cond., \$40. VK3JUU, QTHR. Ph. (07) 225 8690 Bus., (07) 355 7051 AH.

Yasuo FRQ7 Rx, perfect cond., 12 mhz. cld, \$250. Andrew Roy VK3BXT, Ph. (03) 459 5752.

Kenwood TS-520S Transceiver, good cond., 12V power pack, \$505, OHNO, VK3BLE, QTHR. Ph. (03) 725 0353.

Heathkit SB100 HF Transceiver, good cond., \$300, VK3KD, QTHR. Ph. (03) 221 1458 AH.

Electronics Australia, complete set 1968-1979, excellent cond., \$150 complete set or \$15 per year. Contact K. Cocks VK3NPC, QTHR. Ph. (051) 57 1492.

Tektronix type 525 Waveform Monitor, complete with orig. instruction manual, 240V AC operation, can be used for station monitorscope or converted to oscilloscope, exc. cond., \$80. VK3NPC, QTHR. Ph. (051) 57 1492 AH.

RTTY Terminal Unit plug-in type printed circuit boards, several sets, for ST-6 demodulator (orig. unmodified), set of 8 boards, \$28/AK-1 modular, one board, \$3.50; UT-4 regenerative repeater/speed converter with memory set of 4 boards, \$21.20; monitorscope, set of 2 boards, \$7; automatic CW identifier, one board, \$3.50; automatic frequency control, one board, \$3.50. Slave VK3ZY, QTHR. Ph. (03) 277 4748 AH.

10m SSB, AM, CW Cybernet Tcvr., cont. cov. 28 to 28.3 MHz, proven performer, tuned to perfection, complete with handbook, rocking armature, m.c., details of modifications, etc., can't miss, \$160. VK4NZB, 80A Patten St, Dalby. Ph. (074) 62 1177.

TS1269, Irmac cond., used 1 hr. only, matching AT150 ATU, brand new, set Yassu mobile whips, 10-10m, 10m, 215, 8 ch. filled, at 10m, 10m, 10m 300 UHF 400 ch. synth., twin to IC280 remote, etc., all above at lower prices. Ph. (046) 2 3835 AS.

Kenwood TS120B 100W HF Mobile Tcvr., \$650, ONO; Yassu FL110 100W HF mob. linear, \$210, ONO; Hygain 204 BA 20m 4 el. beam with BN-86 balun, \$150, ONO; Lafayette micro P100A, 147-174 MHz FM mob. Rcvr, \$150, ONO; Vinten 6 FM plus Realist patroler, \$50 plus \$47 arm rig, \$30 for the three; 12m Swiss quad ant, \$100, ONO; Kriesler 2B in colour TV, \$350, ONO. VK3MKM, QTHR. Ph. (03) 638 2733 Bua, (03) 86 3710 AH.

Kenwood TR-320 Tcvr., AC-DC, good cond., with m.c., handbook, original carton, \$400; matching SP-520 speaker, \$25; AT-200 antenna tuner, \$140; Yassu FT-7 mobile Tcvr, as new, \$285. Laurie VK2QAW, Ph. (02) 438 2768 Bua, (02) 358 3995 AH.

RTTY Tset 94t, type TDMS 5A and 8BV, \$40 pair; AWA AF oscillator, \$A51042, \$25; AWA AF oscillator, \$A5731, \$25; AWA noise and distortion meter, \$1932, \$25; QY-125 valves, Siemens equiv., unused, with glass chimney, \$15 each. VK4CB, QTHR. Ph. (07) 202 8558.

FT101 FT200 Europa 28/144 Transceiver, 7Rcvr, crystals, valves, etc., BSAE for list. VK2ZAH, QTHR. Ph. (065) 62 4760 AH, or 62 1287 Bua.

Kenwood TR-7500 2m FM Tcvr., synthesised 40 ch., \$250; Nagara 6m yagi \$150, \$30. Contact VK4ZRO, QTHR. Ph. (07) 345 8138.

Barlow Wadley Rcvr XL360, mk. 2, in working order, \$150. Jack VK3EB, QTHR. Ph. (03) 82 1769.

Collins "B" Line 7553B/3253, late road badge model, with matching Collins power supply, all cond., suit Collins enthusiast, \$1250. VK3OMA, QTHR. Ph. (03) 560 9215.

Icom IC701 50W State Tcvr., excellent cond., \$1050. VK3BAY, Ph. (03) 570 4371 AH.

WANTED

UHF Equipment, converters, triplers, etc., need not be "state of art" but must be g.w.o., super pro or similar Rcvr, 2m arm trans suitable for driving UHF triplers, etc. W. Melrose VKWJD, 89 Roslyn Ave., Kingston 7150. Ph. (002) 88 8432 Bua, (002) 29 4586 AH.

Remote VFO for TS620, good cond., R. Miller VK2RMA, 2/2 Glen Parade, Ashgrove, Brisbane, Qld. 4089, or c/o BTOT Ph. (07) 36 0111.

AMR280 Circuit, service manual or any information. Mark Hansen, Box 315 PO, Biloela 4715. Ph. (079) 92 2491.

Circuit Diagram of B & D 426 Oscilloscope, have photocopy facilities, will fully reimburse all costs involved. VK3ZUP, QTHR.

Does anyone have an IF strip for a Collins R390A/UHR they wish to sell? Price and particulars to VK3ZRV, QTHR. Ph. (03) 45 9386 AH.

Microphone Mixer for Rapier stereo amp RP424. Information to VK3CB, QTHR. Ph. (03) 24 4154.

OBITUARY

VIOLET HIEDECK

VI Niedeck, of Bethlehem, Pennsylvania, was first licensed as K3RAG not long after her husband Jim had become active in 1957 as W3MRW. Their only child, Lorraine, came to Australia in 1957 and soon after was licensed as VK3AGQ, so that all three members of the family were then active amateurs. After Jim retired in 1964, he and VI also migrated to Australia and obtained the VK3 calls AIC and BAK. Jim became a Silent Key in 1971, but VI carried on the family tradition, mainly on 30 metre phone, until only a few months before her death, aged 80, in January 1980. She had a wide range of interests, both within and without the amateur scene, and would have been possibly the most senior member of ALARA. Nevertheless, she was a VL in the true sense, retaining young in spirit to the end. The Institute extends its sympathy to her daughter Lorraine, son-in-law Harry, and their family.

W. M. Rice VK3ABP.

REG SMITH

Reg was well known by DX operators as G2DCI from Sutton Coldfield in the UK.

He started in radio when most components were hand made, and he even made his own loudspeakers. He was first issued with a receiving licence in 1921, with instructions that his valve set must not cause interference with other station reception (must have been a regen). He was taking out his amateur radio licence in 1939, when the war came and all equipment was impounded. He had to wait until 1945 to get his gear back, and Call G2DCI.

He moved to Australia in 1978, and the VK1J8 Call was waiting for him, and he has been very active until late December 1979, when he passed away very quickly with a heart attack.

Reg will be missed by his many friends around the world, and by members of the Ex-G. Radio Club here in VK.

Steve VK52B, Sec. Ex-G. Radio Club

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. K. J. COLLINS	VK2JNY
Mr. F. S. SUTHERLAND	140483
Mr. J. L. BUBB	VK2AOI
Mr. R. S. SMITH	VK1JS
Mrs. V. H. NIEDECK	VK3BAK
Mr. K. V. ROGET	VK3YQ/VJ8KR

MURRAY MCGREGOR

Murray McGregor VK4XX, aged 57, died suddenly of a heart attack on 9th January, 1980. Murray will be remembered as an active Radio Amateur in the years since World War 2. During the war Murray served with an A.I.F. Signals Unit, and shortly after his return he joined the Merchant Marine as a radio operator, having qualified from the Marconi School of Wireless. After some 20 years of service with the Merchant Marine Murray was required due to ill-health and thereafter devoted much of his time to Amateur Radio. Murray gave up a lot of his time to the task of co-ordinating the Intruder Watch for the Queensland Division of the WIA, and his untiring efforts in this work will be remembered by all who know him. Murray, always a keen CW operator, for many years conducted one of the "value morse" sessions each week on 80 metres. A quiet man of great sincerity, Murray will be sorely missed by his many friends in the ranks of Amateur Radio.

Submitted by Norm VK4NP.

KEVIN COLLINS

Kevin Collins VK2JNY passed away on Christmas day. First licensed as VK2ZFC, Kevin became a keen CW operator when he upgraded to VK2JNY. He lived at Epping in Sydney but during the 70s spent some years on a country posting with Telecom at Denilquin in the Southern Riverina.

On behalf of the Amateur Radio Service we extend our sympathy to Kevin's family.

de WIA, NSW Division.

Teletype Tower, 40 to 60 ft., 2m transceiver, good working order, reasonable price, need only have channel 2 and 40. VK3UJ, QTHR.

Collins Radio Equipment, KWM-2A tcvr, \$18F-3 power supply, 31295 VFO console or Collins separate Tx/Rcvr combinations, prices asked must be reasonable. Contact VK3JO, GPO Box 5078, Sydney 2001, NSW. Ph. (02) 36 7798 evenings.

Pre-632a Movie Equipment, projectors, cameras, film, etc., any gauge or condition, also wind-up gramophones or Edison cylinder players. Mike Trickett VK3ASQ, PO Box 444, Geelong 3220, or Ph. (052) 78 1943 Bua.

Matching VFO FT101E for FT101E. VK6NE, QTHR. Ph. (09) 279 4069.

Information required for conversion of AWA MR8A carphone junior (70-45 MHz model), to 6 metres, manuals, data, etc., postage costs refunded and manuals returned after 1 photocopy, also xtal for show. Info to Richard VK2BUL, QTHR.

Yassu FV-301 External VFO and FC-301 antenna coupler, SWR, etc., price and cond, reverse charge phone call, quote No. 995, ask for Denis. Ph. (087) 33 3808 Bua, (087) 33 3942 AH.

Yassu FV-301 External VFO, first class condition only, plus manual. PO Box 133, Parkville 3052.

Joining Members for PET Users' Club formed especially to assist in making more effective use of the PET Commodore microprocessor. Write or phone VK3XND, QTHR. Ph. (02) 866 885 AH.

4 Valve Sockets for Siemens valves 8F1053, valve sockets have a group of 5 pins and 4 pins opposite. Jack VK3EB, QTHR. Ph. (03) 82 1769.

Mullard No. 7 Tank Antenna Tuner or similar. Details to Gordon VK3NVO, QTHR, or 3.685 ± Thursdays 1233 GMT.

TRADE HANDS

Amidon Cores, refer to 78 ARRL Handbook. T200-2, T108-2/6, T68-2/8, T50-2/8/10/12, F150-43/61, beads and sleeves FB43-2401, 843-625, large SAE with SSC stamp for info, R.J. and U.S. Imports, Box 157, Mordiallo, NSW 2222.

High-Gain Beams for 40, 16, 10, 6, 2 and 70 cm, also UHF CB and ATV repeaters, QSL frequency counters and kits, Mirage PWR/SWR meters, also 2m amps with pre-amp, 10W in 80W out, amp with Rx preamp, suit 50-154 MHz. Write ATN Antennas, Box 80, Birchip 3483, for catalogue.



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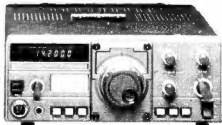
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